

CHAPTER 4

POINT AND NONPOINT SOURCE CHARACTERIZATION OF THE BARREN RIVER WATERSHED

4.1 Background.

4.2. Characterization of HUC-10 Subwatersheds

4.2.A. 0511000201 (West Fork)

4.2.B. 0511000204 (Barren River)

4.2.C. 0511000205 (Salt Lick Creek)

4.2.D. 0511000208 (Trammal Creek)

4.2.E. 0511000209 (Middle Fork)

4.1. BACKGROUND. This chapter is organized by HUC-12 subwatershed, and the description of each subwatershed is divided into four parts:

- i. General description of the subwatershed
- ii. Description of point source contributions
 - ii.a. Description of facilities discharging to water bodies listed on the 2004 303(d) list
- iii. Description of nonpoint source contributions

The Tennessee portion of the Barren River Watershed (HUC 05110002) has been delineated into five HUC 10 (10-digit) subwatersheds, each of which is composed of one or more HUC-12 subwatersheds.

Information for this chapter was obtained from databases maintained by the Division of Water Pollution Control or provided in the WCS (Watershed Characterization System) data set. The WCS used was version 2.0 (developed by Tetra Tech, Inc for EPA Region 4) released in 2003.

WCS integrates with ArcView® v3.x and Spatial Analyst® v1.1 to analyze user-delineated (sub)watersheds based on hydrologically connected water bodies. Reports are generated by integrating WCS with Microsoft® Word. Land Use/Land Cover information from 1992 MRLC (Multi-Resolution Land Cover) data are calculated based on the proportion of county-based land use/land cover in user-delineated (sub)watersheds. Nonpoint source data in WCS are based on agricultural census data collected 1992–1998; nonpoint source data were reviewed by Tennessee NRCS staff.

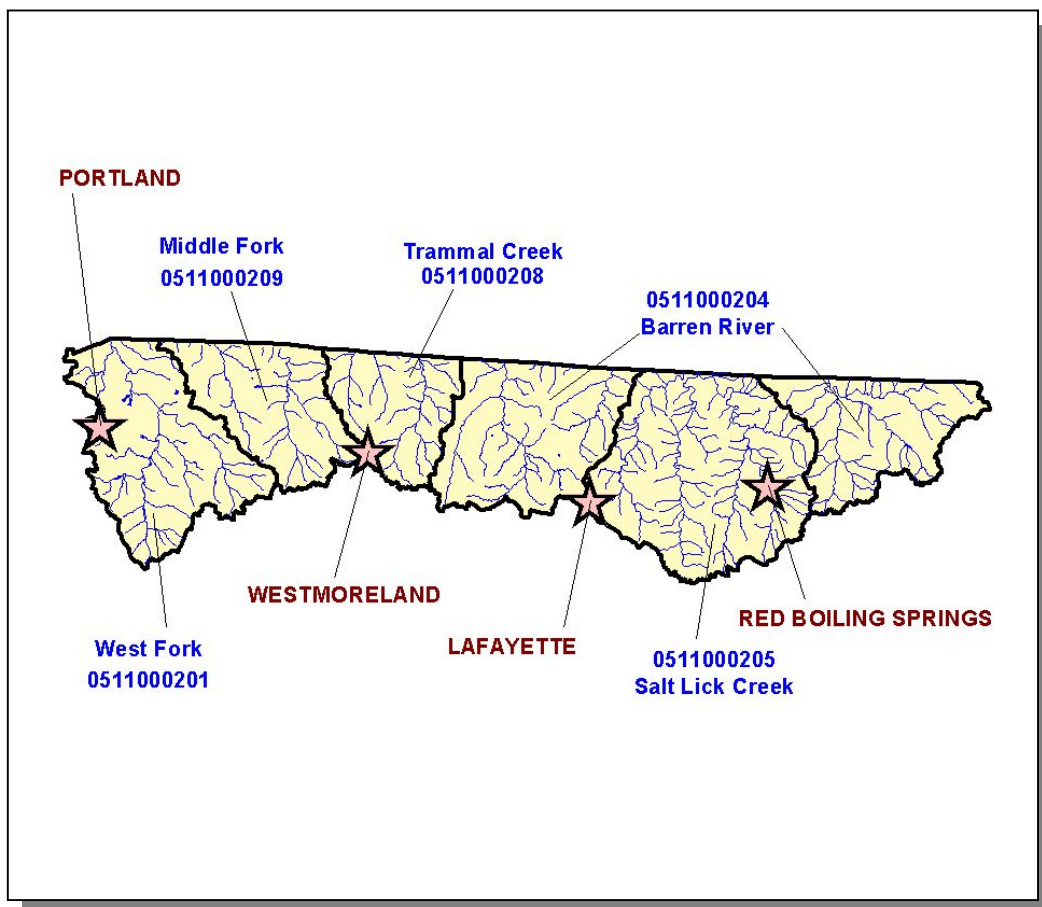


Figure 4-1. The Tennessee Portion of the Barren River Watershed is Composed of Five USGS-Delineated Subwatersheds (10-Digit Subwatersheds). Locations of Lafayette, Portland, Red Boiling Springs, and Westmoreland are shown for reference.

4.2. CHARACTERIZATION OF HUC-12 SUBWATERSHEDS. The Watershed Characterization System (WCS) software and data sets provided by EPA Region IV were used to characterize each subwatershed in the Tennessee portion of the Barren River Watershed.

HUC-10	HUC-12
0511000201	051100020101 (Upper West Fork)
	051100020102 (Lower West Fork)
0511000204	051100020403 (Treeline Creek)
	051100020404 (Barren River)
	051100020405 (Puncheon Creek)
	051100020406 (Pinchgut Creek)
	051100020407 (Long Hungry Creek)
	051100020408 (Long Creek)
0511000205	051100020501 (Salt Lick Creek)
	051100020502 (Long Fork)
0511000208	051100020801 (Trammel Creek)
	051100020802 (Little Trammel Creek)
0511000209	051100020901 (Middle Fork)
	051100020902 (Sulfur Fork)

Table 4-1. HUC-12 Drainage Areas are Nested Within HUC-10 Drainages. NRCS worked with USGS to delineate the HUC-10 and HUC-12 drainage boundaries.

4.2.A. 0511000201.

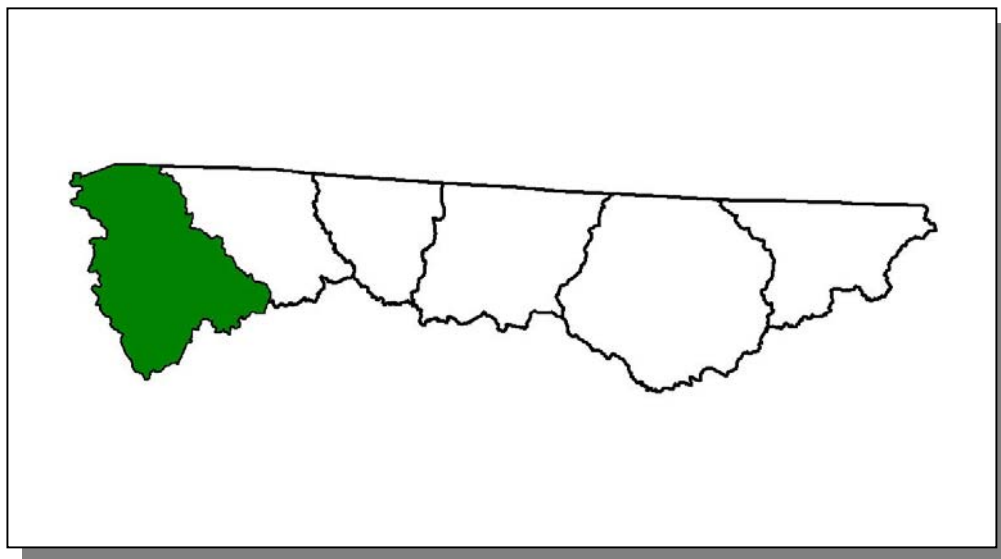


Figure 4-2. Location of Subwatershed 051100020101. All Barren River HUC-10 subwatershed boundaries are shown for reference.

4.2.A.i. 051100020101 (Upper West Fork).

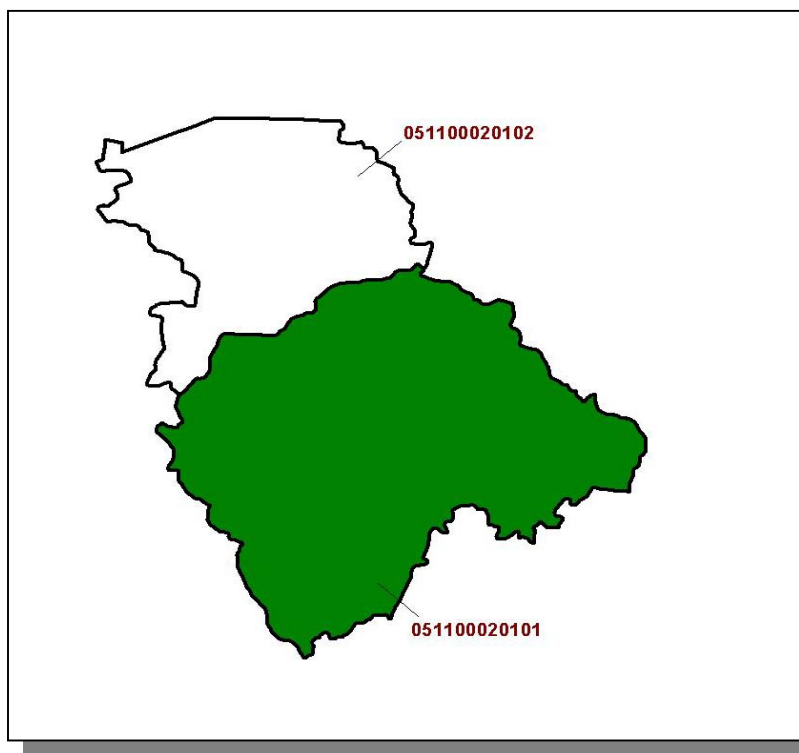


Figure 4-3. Location of Subwatershed 051100020101. All Barren River HUC-12 subwatershed boundaries are shown for reference.

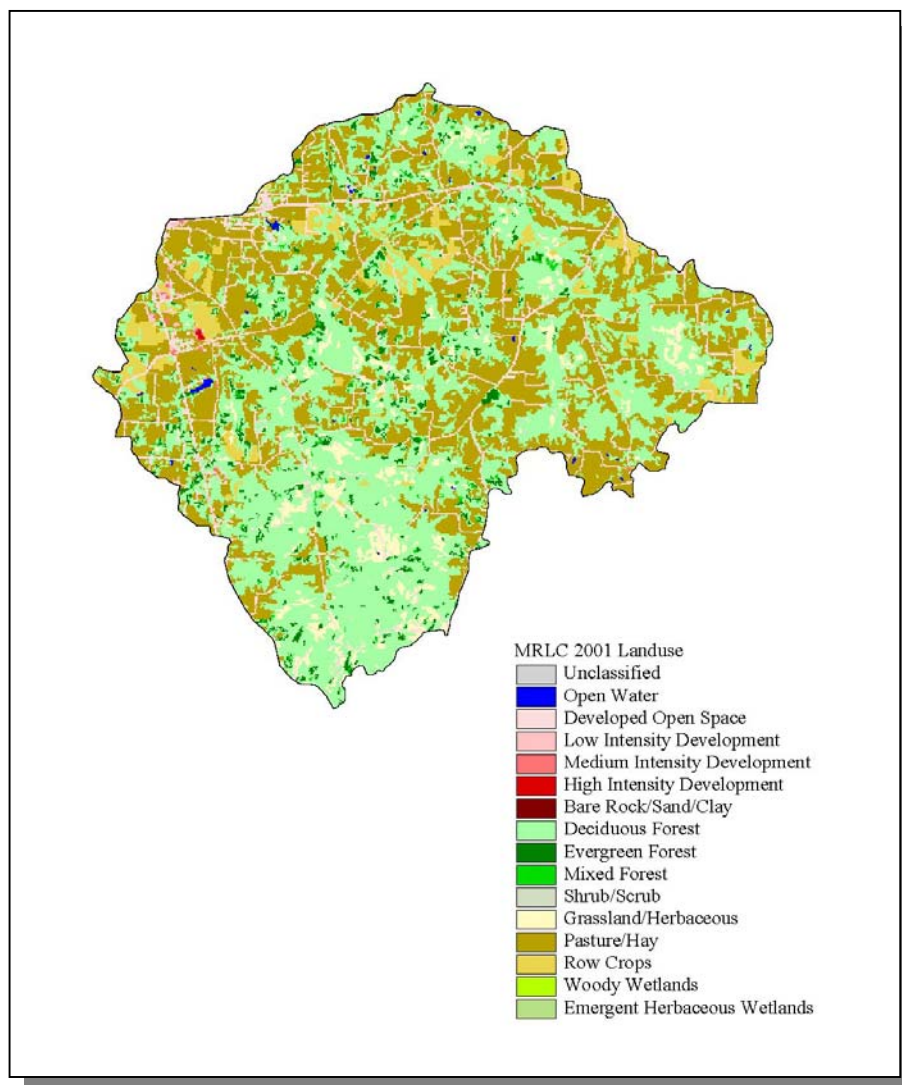


Figure 4-4. Illustration of Land Use Distribution in Subwatershed 051100020101. More information is provided in Appendix IV.

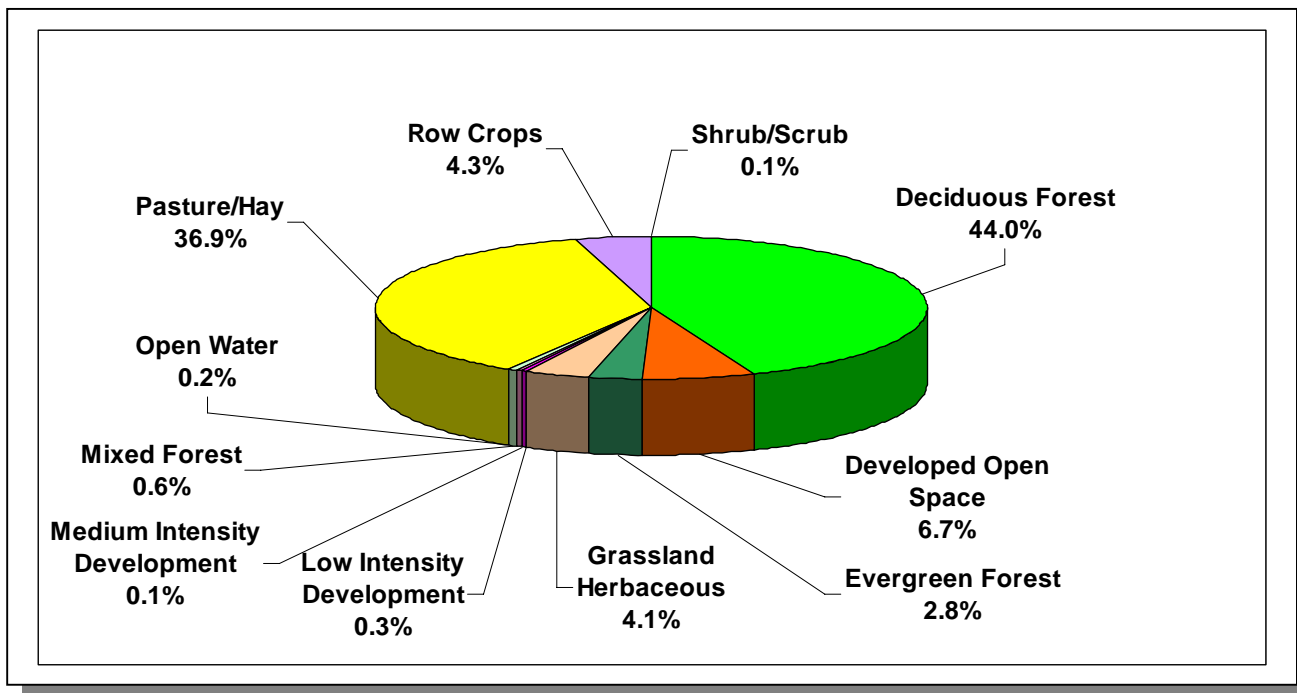


Figure 4-5. Land Use Distribution in Subwatershed 051100020101. More information is provided in Appendix IV.

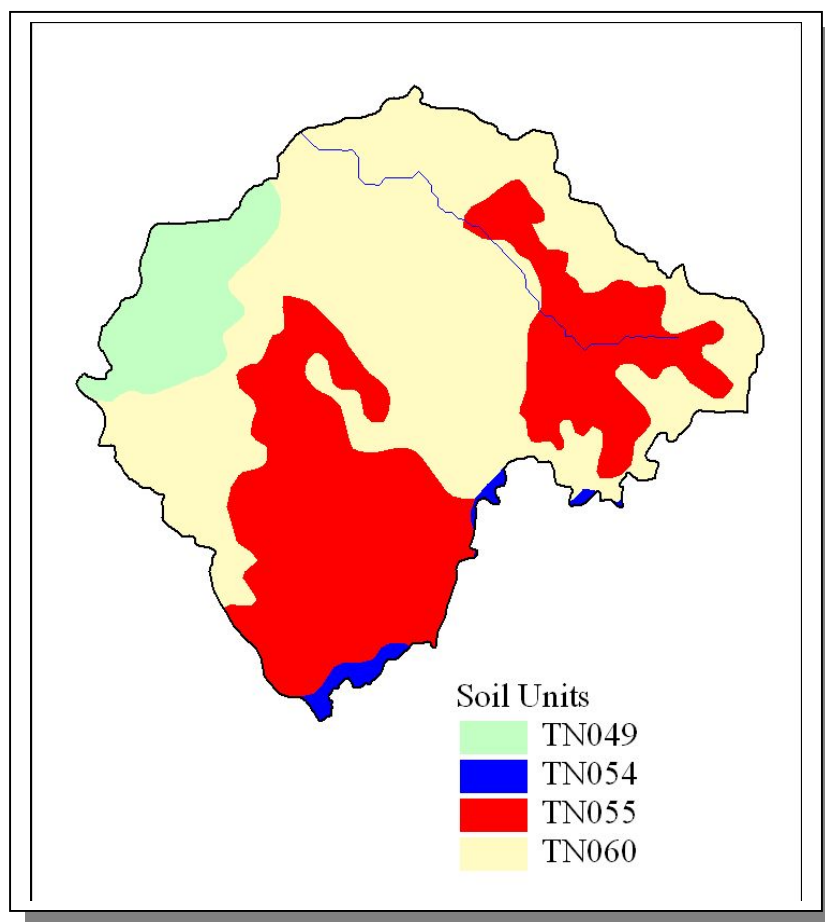


Figure 4-6. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020101.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN049	0.00	B	1.30	5.94	Silty Loam	0.34
TN054	0.00	C	3.04	4.84	Loam	0.32
TN055	3.00	C	2.45	5.24	Loam	0.34
TN060	5.00	B	1.30	5.32	Silty Loam	0.39

Table 4-2. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020101. The definition of "Hydrologic Group" is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Sumner	103,281	121,936	130,449	9.55	9,865	11,646	12,460	26.3

Table 4-3. Population Estimates in Subwatershed 051100020101.

				NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other	
Portland	Sumner	5,165	2,101	1,382	705	14	

Table 4-4. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 051100020101.

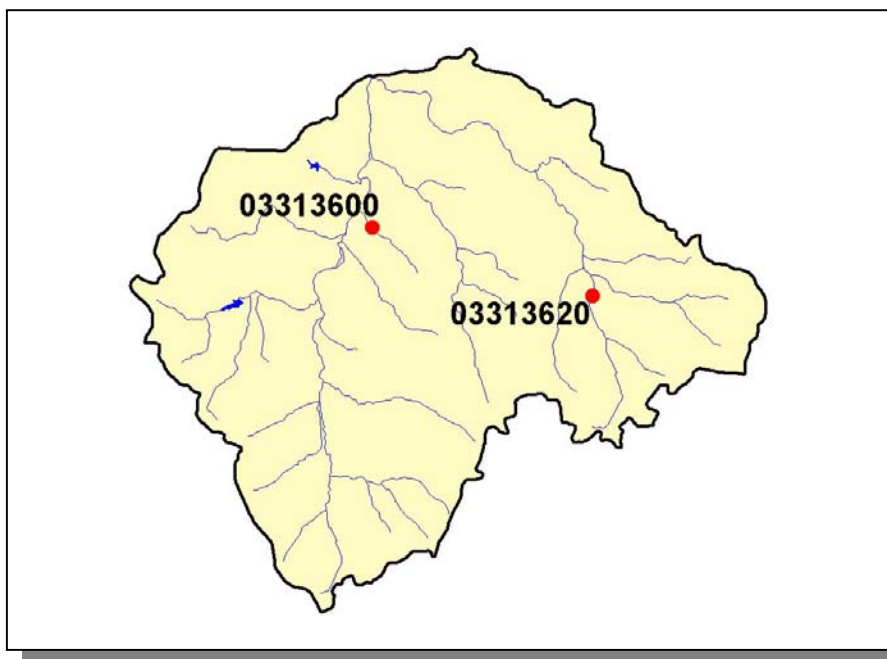


Figure 4-7. Location of Historical Streamflow Data Collection Sites in Subwatershed 051100020101. More information is provided in Appendix IV.

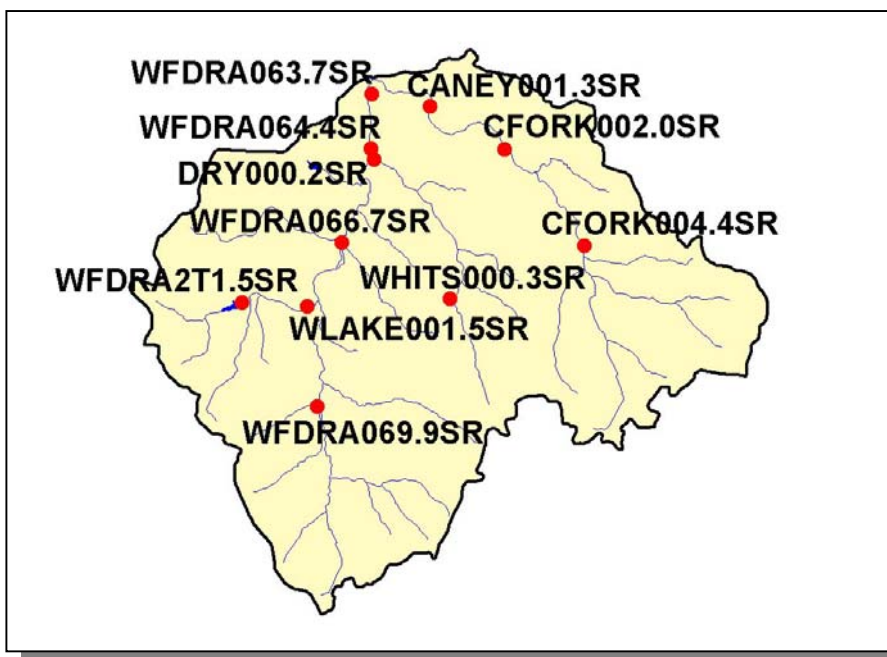


Figure 4-8. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 051100020101. More information, including site names and locations, and station numbers for sites located in the watershed outside of Tennessee, is provided in Appendix IV.

4.2.A.i.a. Point Source Contributions.

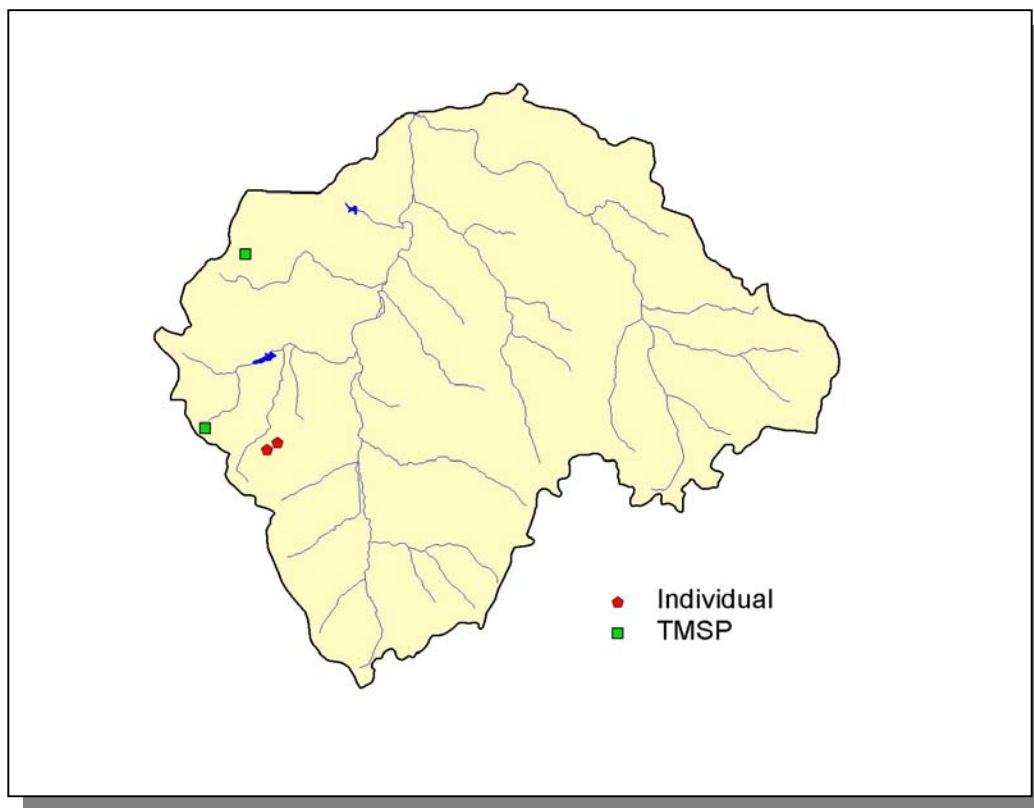


Figure 4-9. Location of Active NPDES Sites in Subwatershed 051100020101. More information, including the names of facilities, is provided in Appendix IV.

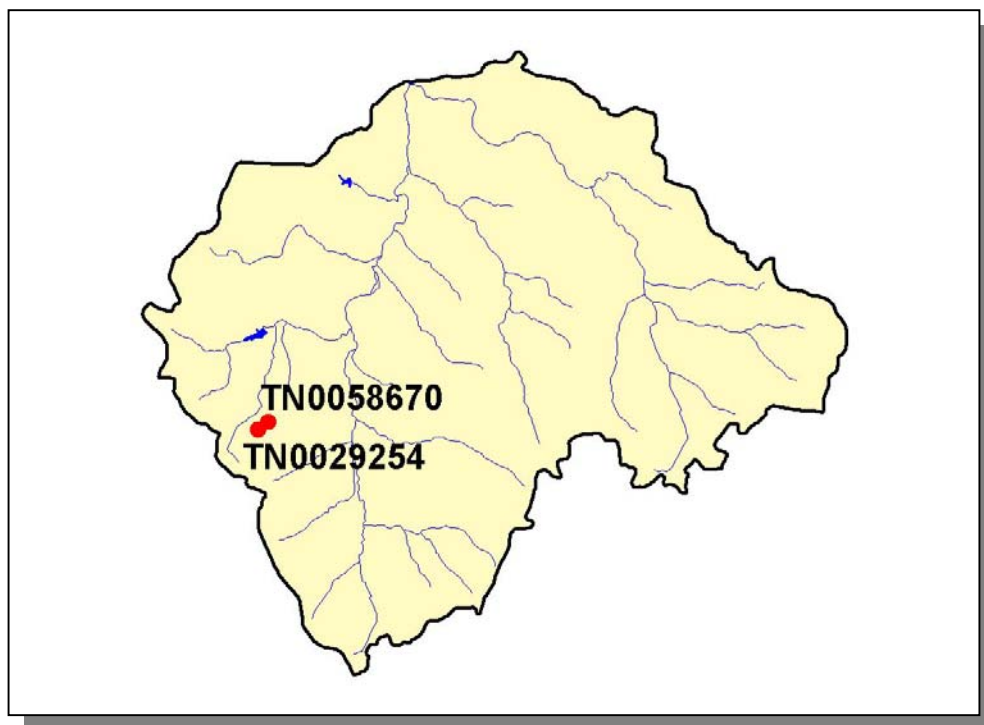


Figure 4-10. Location of Active NPDES Sites in Subwatershed 051100020101. More information, including the names of facilities, is provided in Appendix IV.

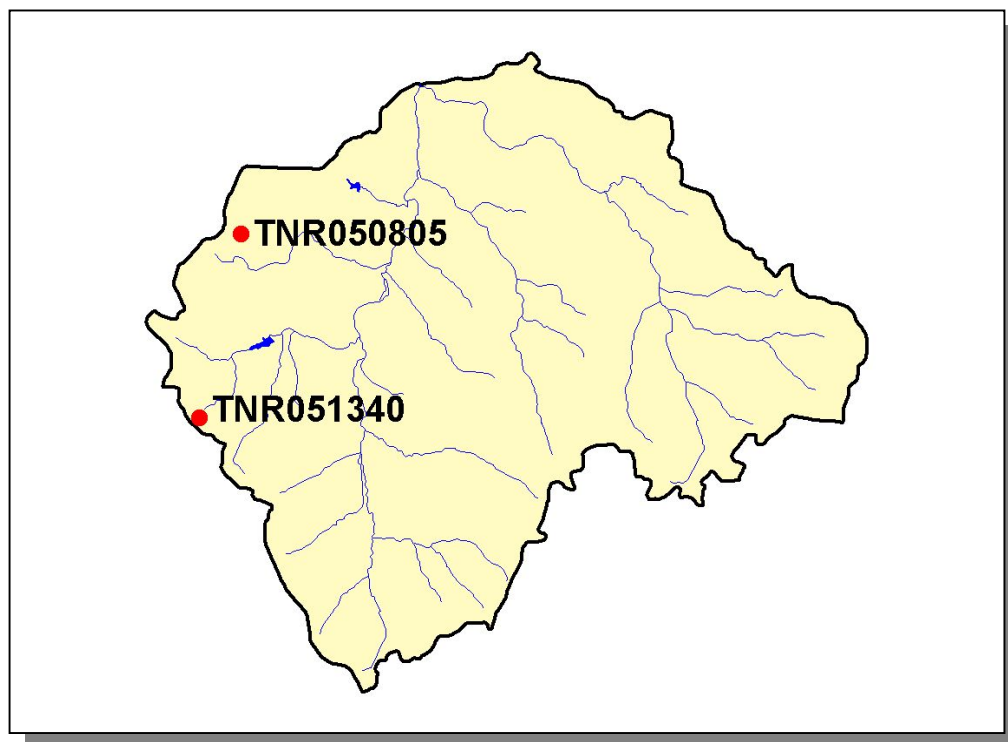


Figure 4-11. Location of TMSF Sites in Subwatershed 051100020101. More information, including the names of facilities, is provided in Appendix IV.

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4.2.A.i.b. Nonpoint Source Contributions.

LIVESTOCK COUNTS					
Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
3,641	7,368	247	8	408	31

Table 4-5. Summary of Livestock Count Estimates in Subwatershed 051100020101. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Sumner	22,296	45,116	1,515	50	2,500	189

Table 4-6. Summary of Livestock Count Estimates in Sumner County. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Sumner	88.2	88.2	2	6.3

Table 4-7. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 051100020101.

CROPS	TONS/ACRE/YEAR
Grass (Pastureland)	0.46
Grass (Hayland)	0.23
Legumes (Hayland)	0.12
Grass, Forbs, Legumes (Mixed Pasture)	0.54
Corn (Row Crops)	12.32
Soybeans (Row Crops)	11.27
Other Cropland not Planted	19.23
Conservation Reserve Program Lands	0.26
Non-Agricultural Land Use	0.00
Farmsteads and Ranch Headquarters	0.34

Table 4-8. Annual Estimated Total Soil Loss in Subwatershed 051100020101.

4.2.A.ii. 051100020102 (Lower West Fork).

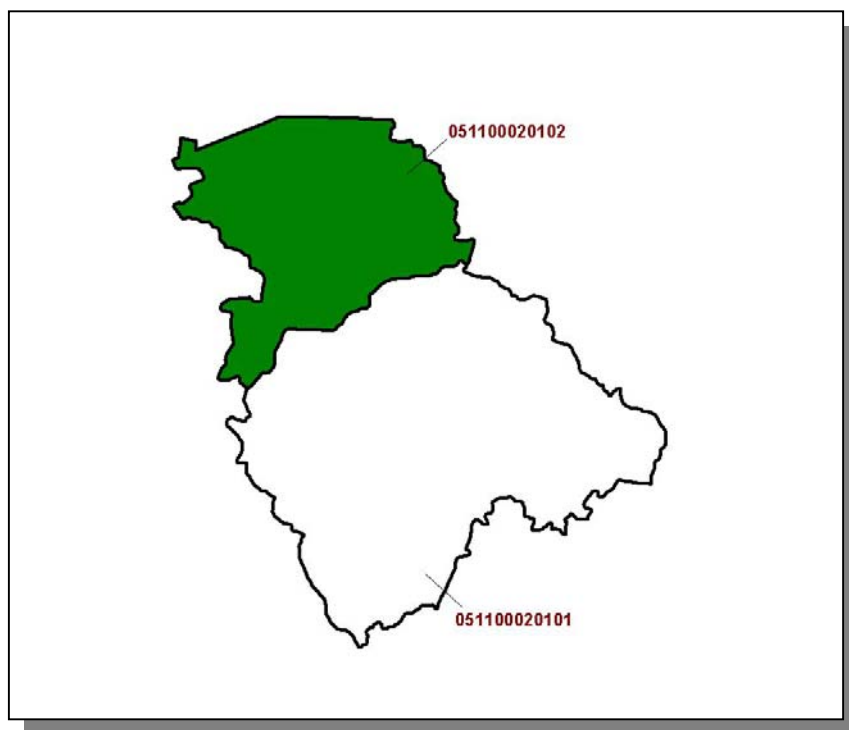


Figure 4-12. Location of Subwatershed 051100020102. All Barren River HUC-12 subwatershed boundaries are shown for reference.

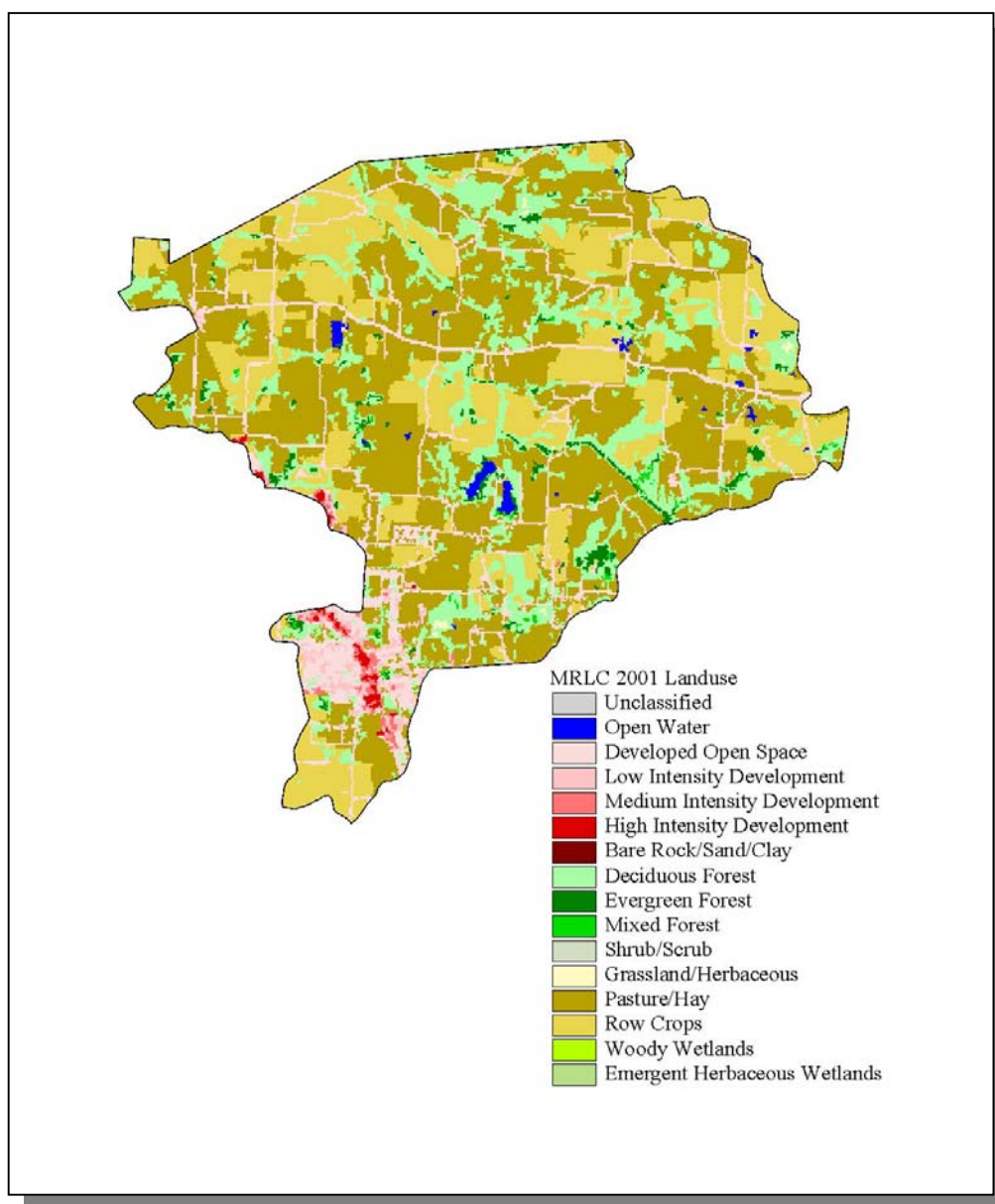


Figure 4-13. Illustration of Land Use Distribution in Subwatershed 051100020102. More information is provided in Appendix IV.

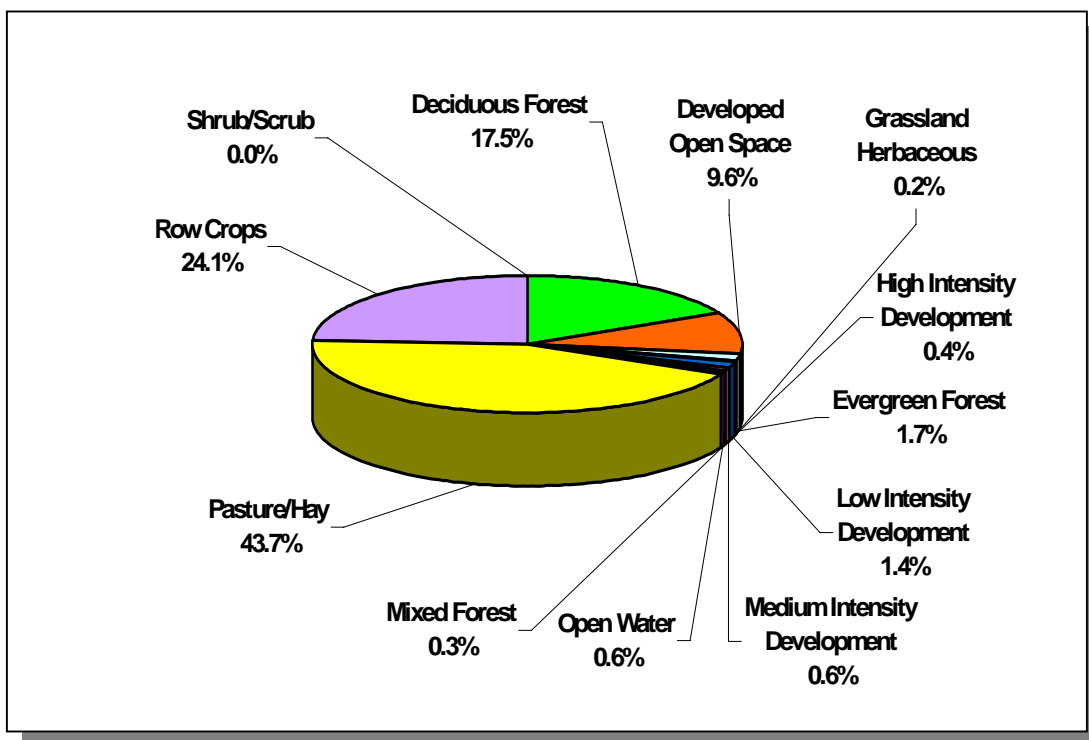


Figure 4-14. Land Use Distribution in Subwatershed 051100020102. More information is provided in Appendix IV.

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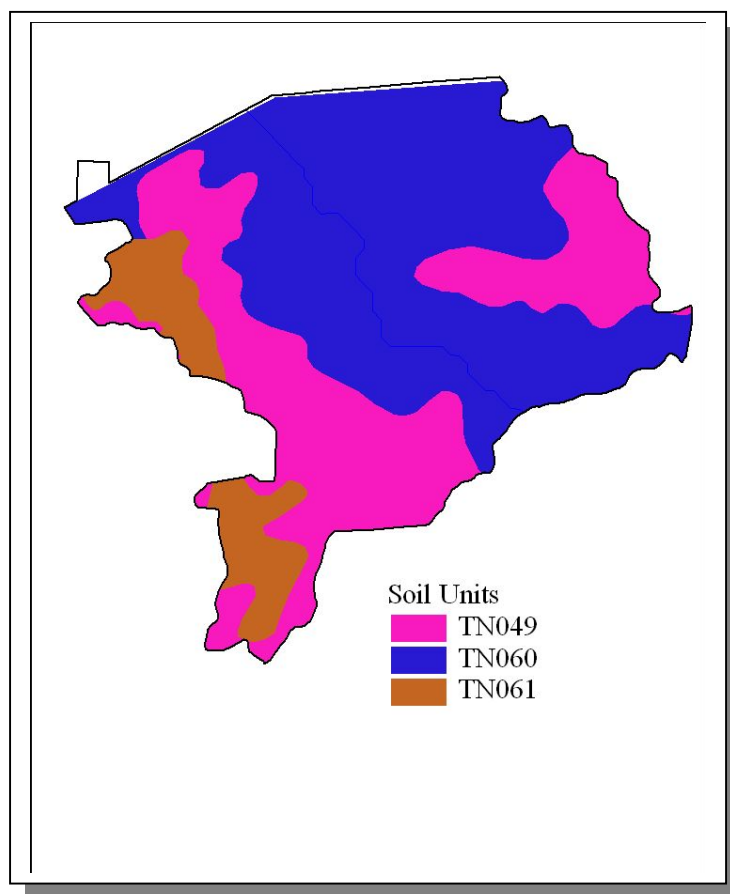


Figure 4-15. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020102.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN049	0.00	B	1.30	5.94	Silty Loam	0.34
TN060	0.00	B	1.30	5.32	Silty Loam	0.39
TN061	50.00	C	1.30	5.09	Silty Loam	0.42

Table 4-9. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020102. The definition of "Hydrologic Group" is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Robertson	41,494	51,533	54,433	0.25	103	128	135	31.1
Sumner	103,281	121,936	130,449	4.94	5,107	6,029	6,450	26.3
Total	144,775	173,469	184,882		5,210	6,157	6,585	26.4

Table 4-10. Population Estimates in Subwatershed 051100020102.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Mitchellville	Sumner	198	96	2	94	0
Portland	Sumner	5,165	2,101	1,382	705	14
Totals		5,363	2,197	1,384	799	14

Table 4-11. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 051100020102.

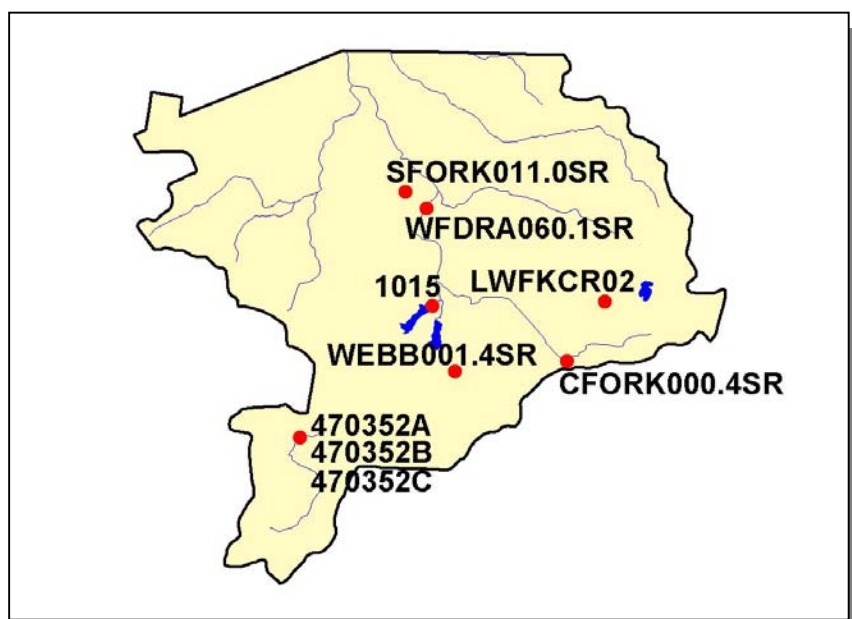


Figure 4-16. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 051100020102. More information, including site names and locations, and station numbers for sites located in the watershed outside of Tennessee, is provided in Appendix IV.

4.2.A.ii.a. Point Source Contributions.

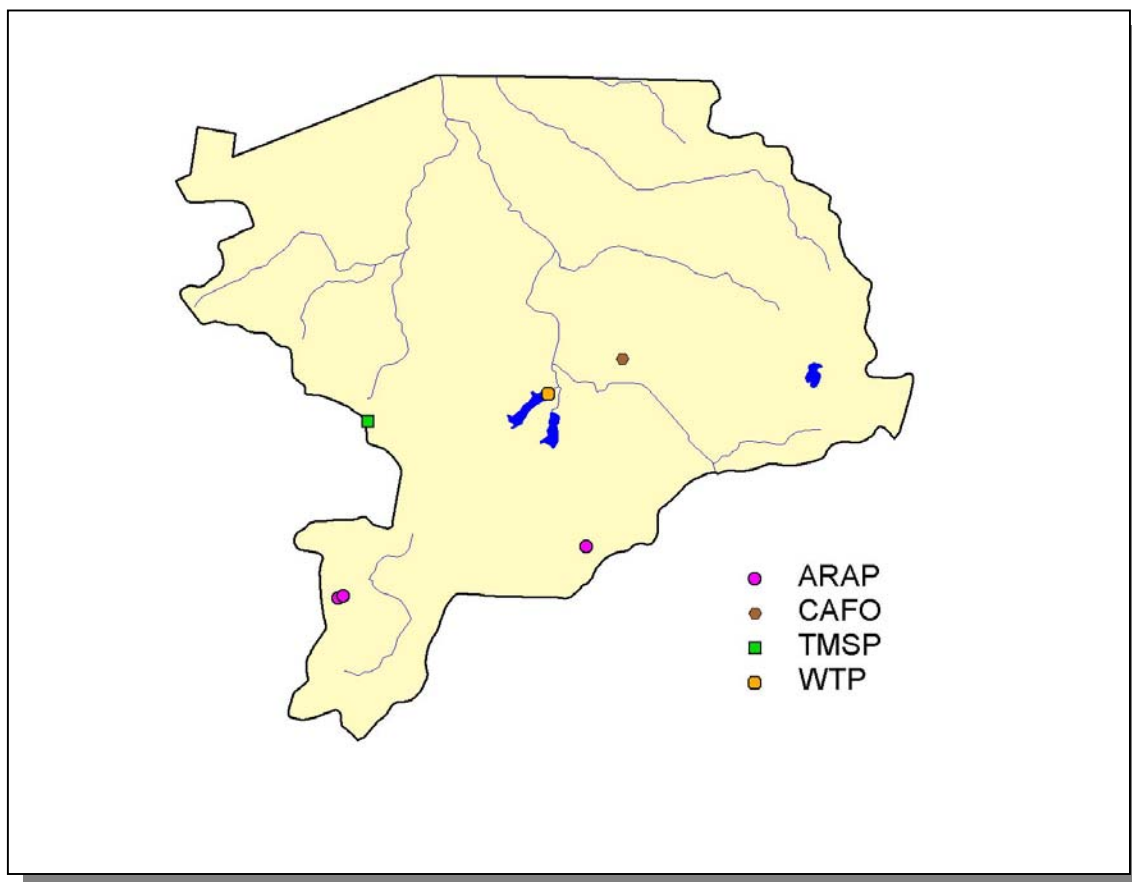


Figure 4-17. Location of Permits Issued in Subwatershed 051100020102. More information, including the names of facilities, is provided in Appendix IV.

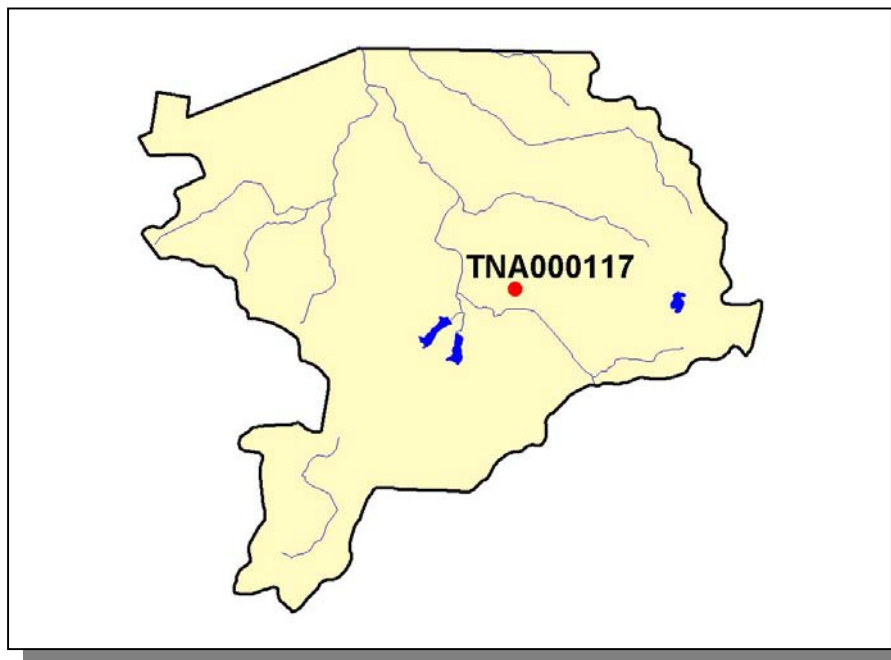


Figure 4-18. Location of Concentrated Animal Feeding Operations (CAFO) in Subwatershed 051100020102. More information, including the names of facilities, is provided in Appendix IV

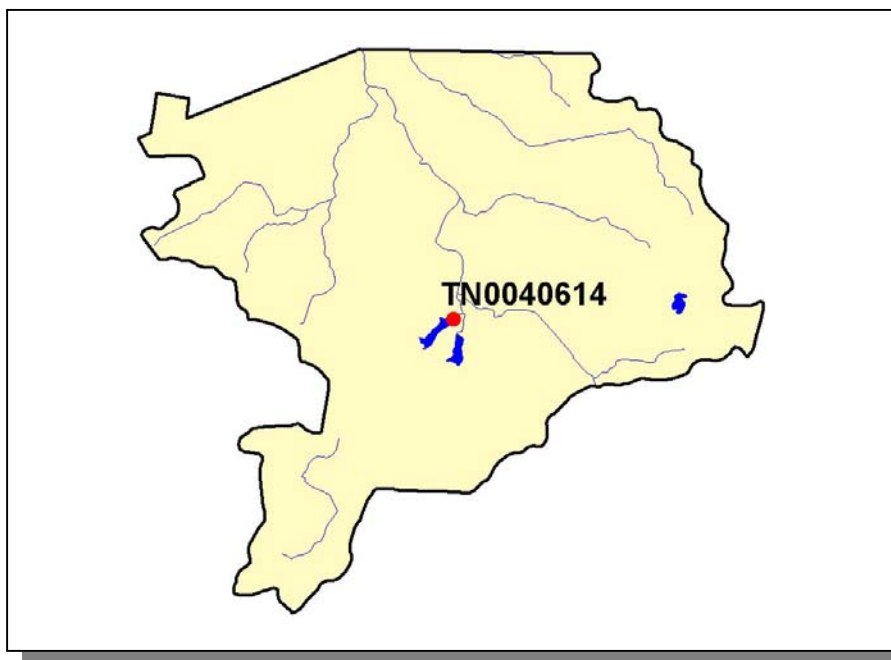


Figure 4-19. Location of Water Treatment Plants in Subwatershed 051100020102. More information, including the names of facilities, is provided in Appendix IV.

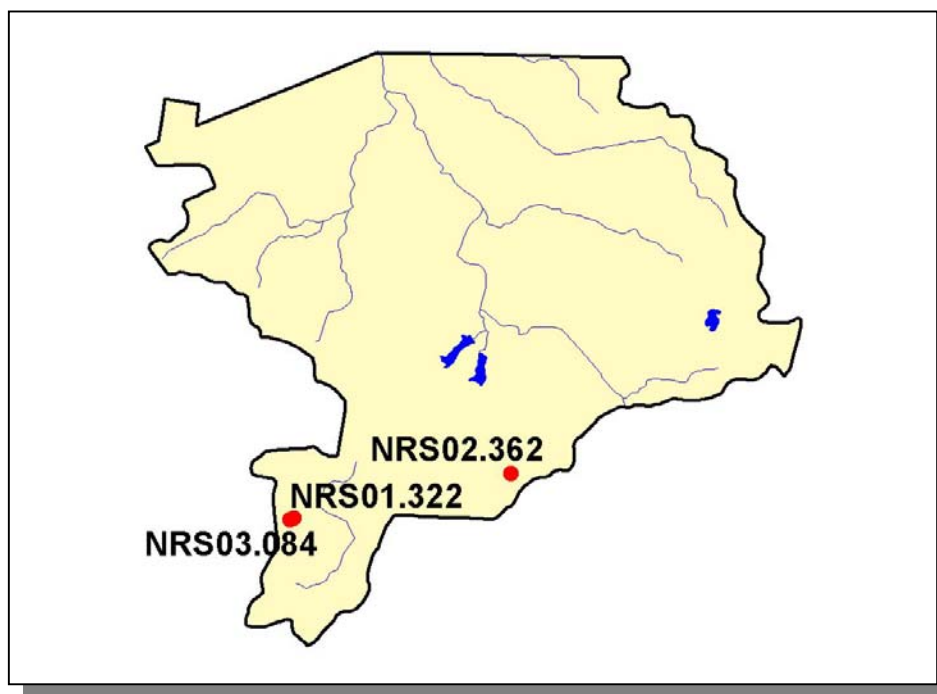


Figure 4-20. Location of Aquatic Resource Alteration Permit (ARAP) Sites (Individual Permits) in Subwatershed 051100020102. More information is provided in Appendix IV.

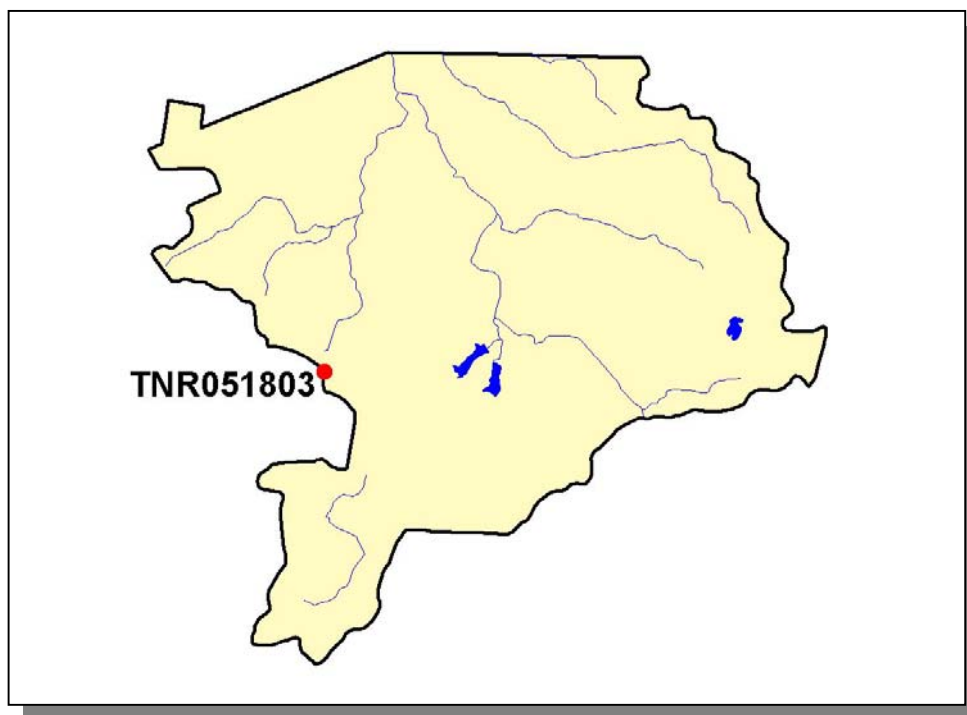


Figure 4-21. Location of TMSP Sites in Subwatershed 051100020102. More information, including the names of facilities, is provided in Appendix IV.

4.2.A.ii.a. Dischargers to Water Bodies Listed on the 2004 303(d) List

There is one NPDES facility discharging to water bodies listed on the 2004 303(d) list in Subwatershed 051100020102:

- TN0040614 (Portland WTP) discharges to Donaho Branch

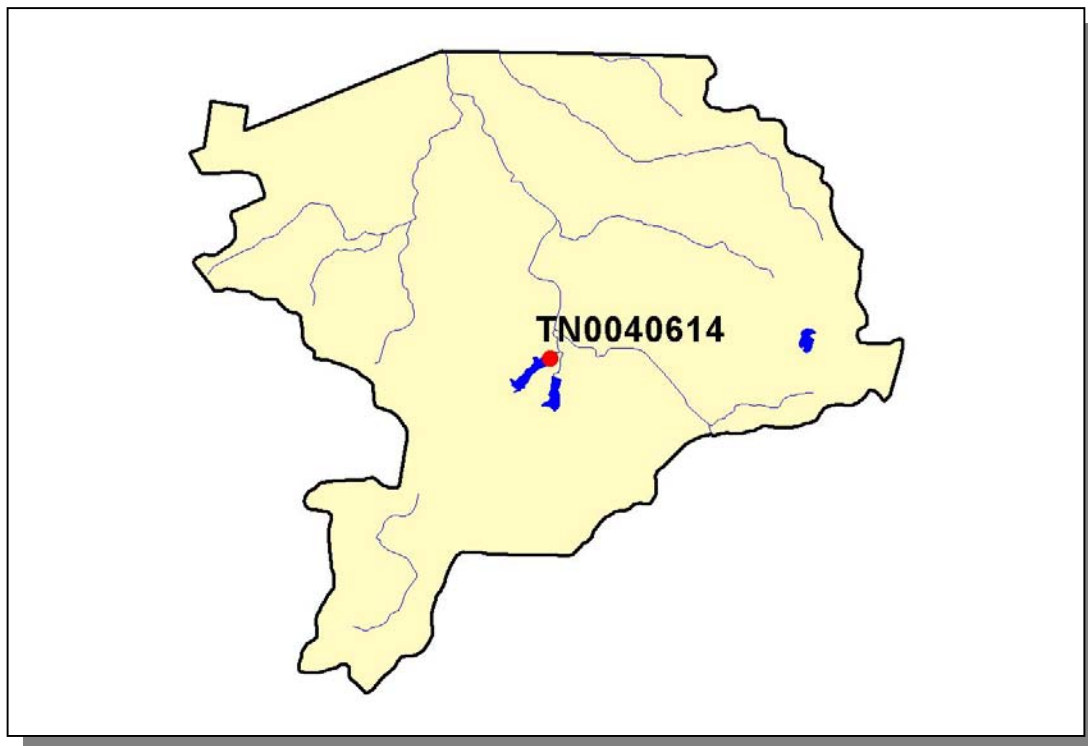


Figure 4-22. Location of NPDES Dischargers to Water Bodies Listed on the 2004 303(d) List in Subwatershed 051100020102. More information, including the names of facilities, is provided in Appendix IV.

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PERMIT #	1Q10	3Q10	7Q10	3Q20	QDESIGN
TN0040614			0		

Table 4-12. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 2004 303(d) List in Subwatershed 051100020102. Data are in million gallons per day (MGD). Data were obtained from the USGS publication Flow Duration and Low Flows of Tennessee Streams Through 1992 or from permit files.

PERMIT #	AI
TN0040614	X

Table 4-13. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 2004 303(d) List in Subwatershed 051100020102.

PERMIT #	TRC	TSS	SETTLEABLE SOLIDS	pH
TN0040614	X	X	X	X

Table 4-14. Inorganic Parameters Monitored for Daily Maximum Limits for NPDES Dischargers to Waterbodies Listed on the 2004 303(d) List in Subwatershed 051100020102. TRC, Total Residual Chlorine; TSS, Total Suspended Solids.

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4.2.A.ii.b. Nonpoint Source Contributions.

LIVESTOCK					
Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
1,998	4,043	136	<5	224	17

Table 4-15. Summary of Livestock Count Estimates in Subwatershed 051100020102.
According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Robertson	22,502	47,887	3,478	31	6,982	279
Sumner	22,296	45,116	1,515	50	2,500	189

Table 4-16. Summary of Livestock Count Estimates in Robertson and Sumner Counties.
According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Robertson	53.0	53.0	2.2	9.7
Sumner	88.2	88.2	2.0	6.3

Table 4-17. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 051100020102.

CROPS	TONS/ACRE/YEAR
Grass (Pastureland)	0.46
Grass (Hayland)	0.31
Legumes (Hayland)	0.12
Legumes, Grass (Hayland)	0.23
Grass, Forbs, Legumes (Mixed Pasture)	0.54
Corn (Row Crops)	12.32
Soybeans (Row Crops)	11.27
Tobacco (Row Crops)	11.87
Wheat (Close-Grown Cropland)	1.68
Other Cropland not Planted	19.23
Conservation Reserve Program Lands	0.26
Other Land in Farms	0.27
Farmsteads and Ranch Headquarters	0.34

Table 4-18. Annual Estimated Total Soil Loss in Subwatershed 051100020102.

4.2.B. 0511000204.

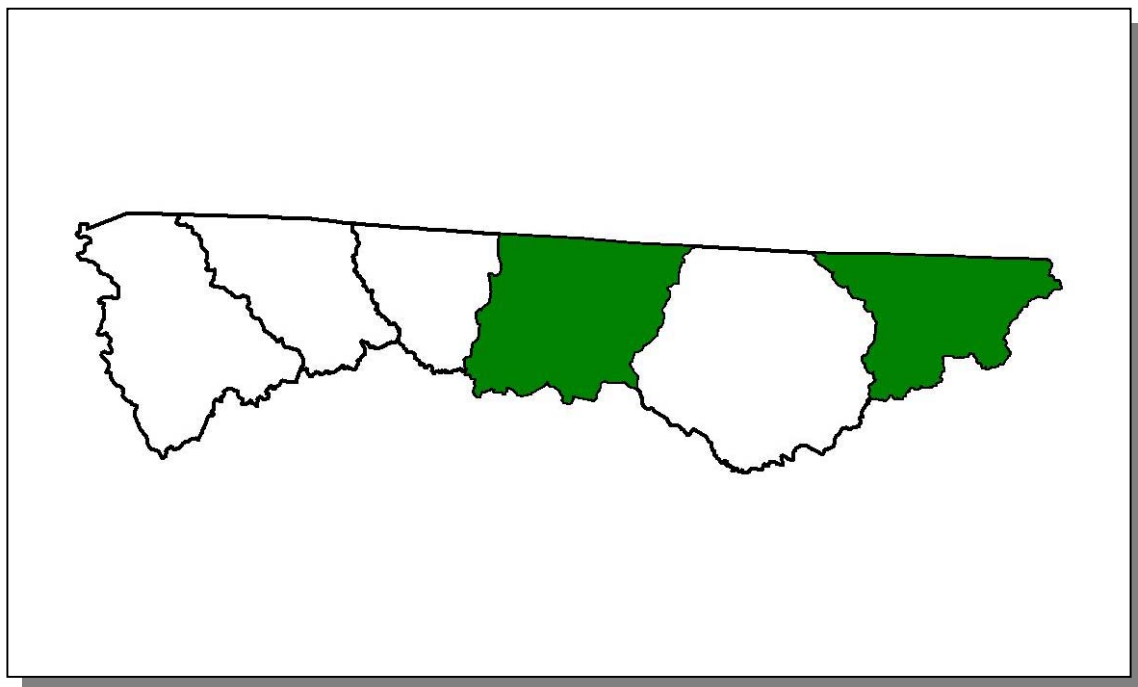


Figure 4-23. Location of Subwatershed 0511000204. All Barren River HUC-10 subwatershed boundaries are shown for reference.

4.2.B.i. 051100020403 (Treeline Creek).

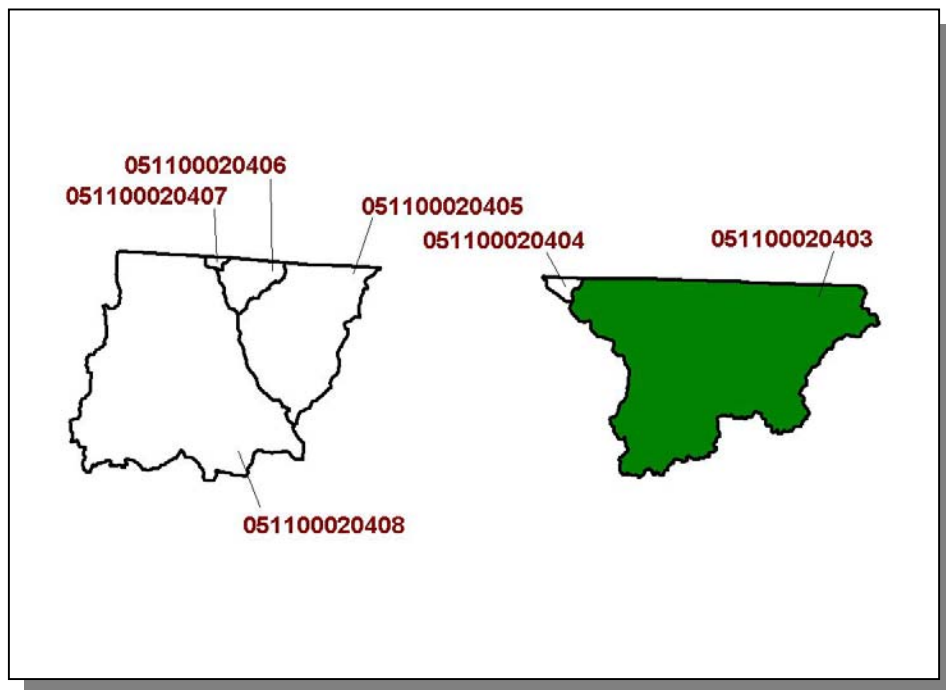


Figure 4-24. Location of Subwatershed 051100020403. All Barren River HUC-12 subwatershed boundaries are shown for reference.

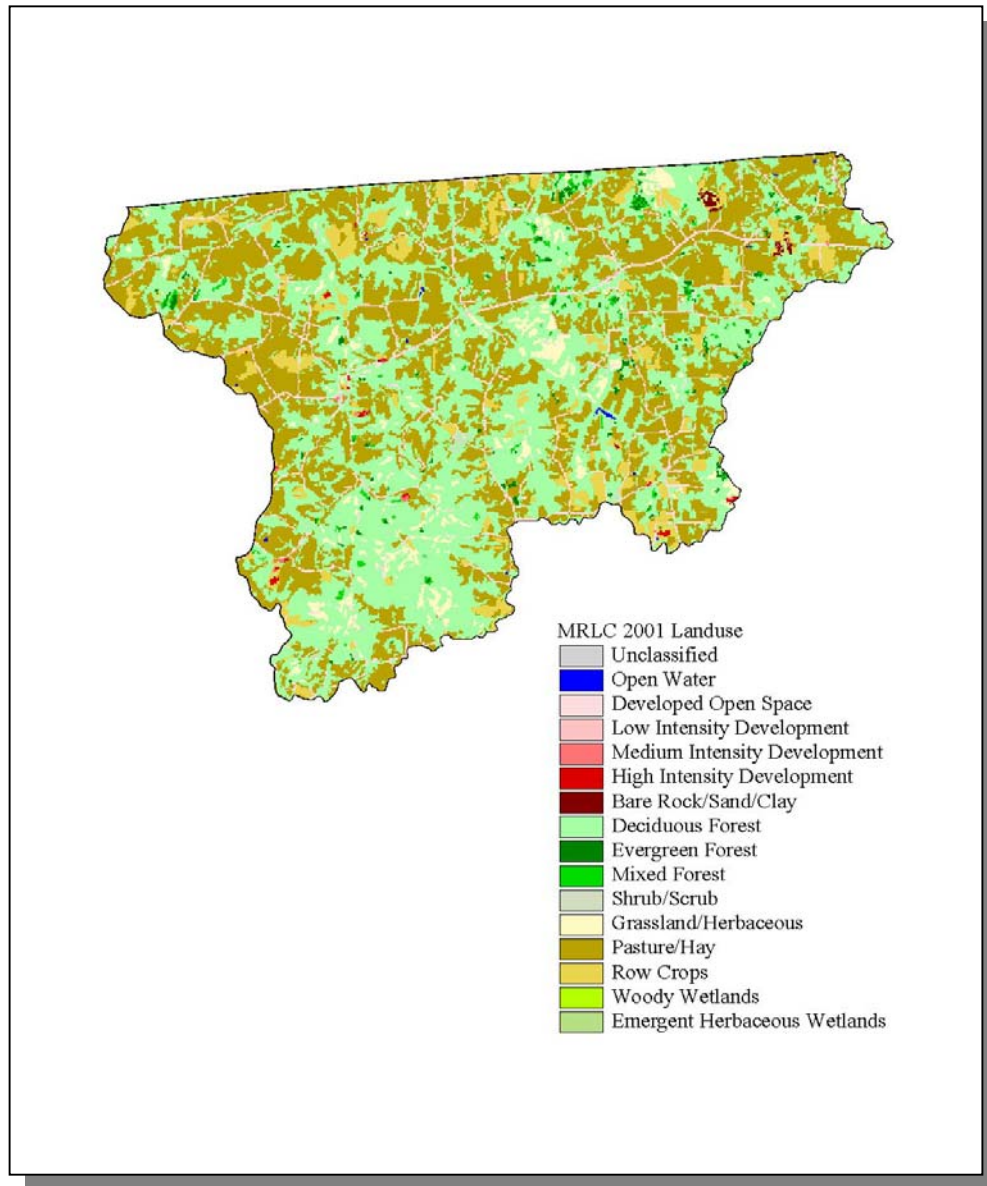


Figure 4-25. Illustration of Land Use Distribution in Subwatershed 051100020403.

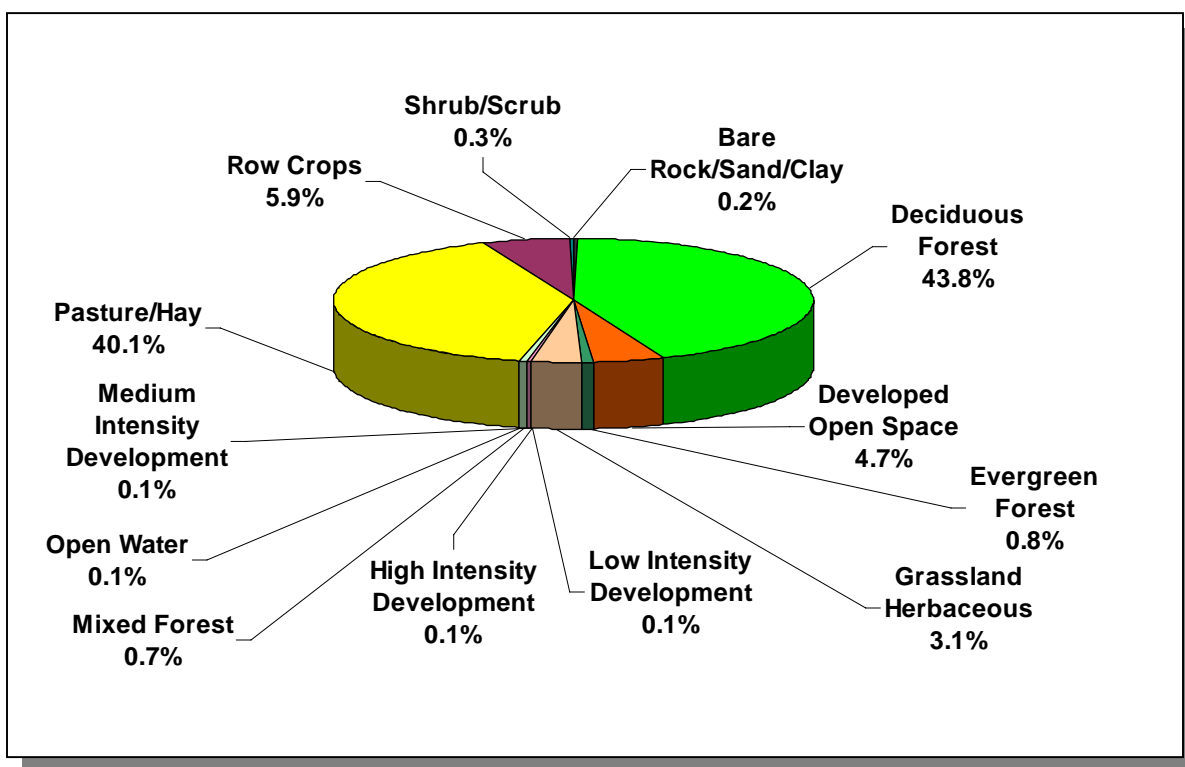


Figure 4-26. Land Use Distribution in Subwatershed 051100020403. More information is provided in Appendix IV.

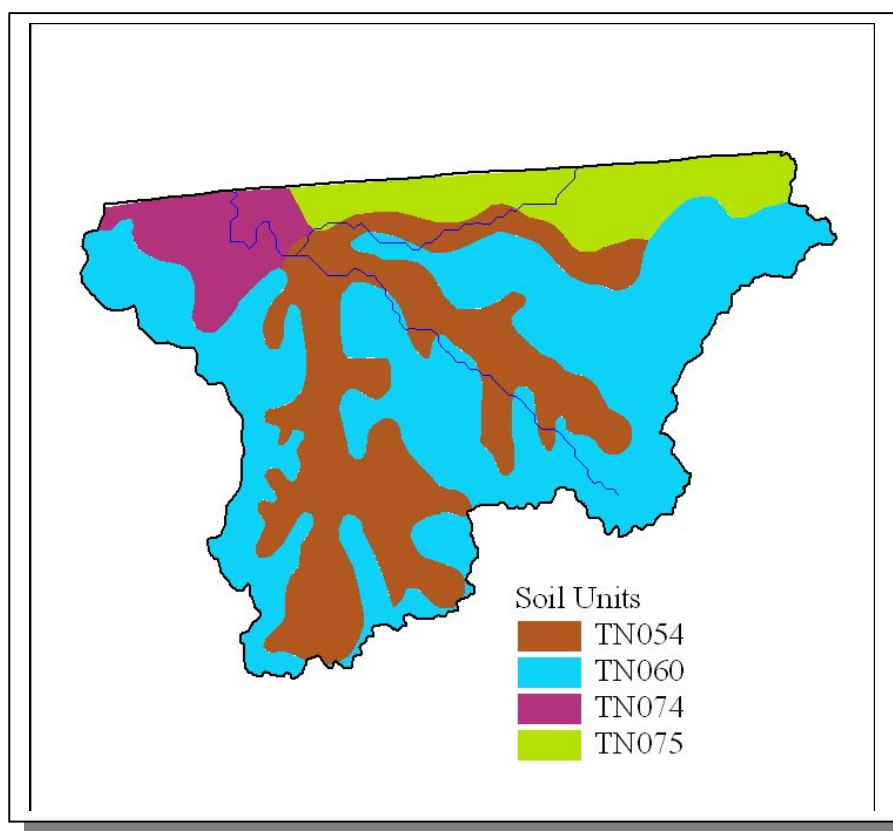


Figure 4-27. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020403.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN054	0.00	C	3.04	4.84	Loam	0.32
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN074	7.00	B	1.55	4.94	Loam	0.33
TN075	0.00	B	1.33	5.24	Loam	0.31

Table 4-19. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020403. The definition of "Hydrologic Group" is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Clay	7,238	7,311	7,976	19.4	1,404	1,418	1,547	10.2
Macon	15,906	17,854	20,386	2.89	459	515	588	28.1
Totals	23,144	25,165	28,362		1,863	1,933	2,135	14.6

Table 4-20. Population Estimates in Subwatershed 051100020403.

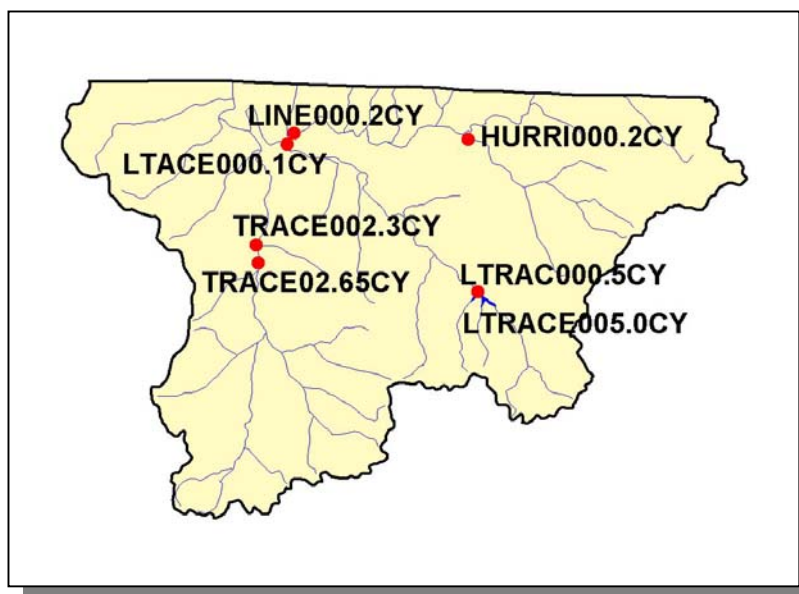


Figure 4-28. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 051100020403. More information, including site names and locations, and station numbers for sites located in the watershed outside of Tennessee, is provided in Appendix IV.

4.2.B.i.a. Point Source Contributions.

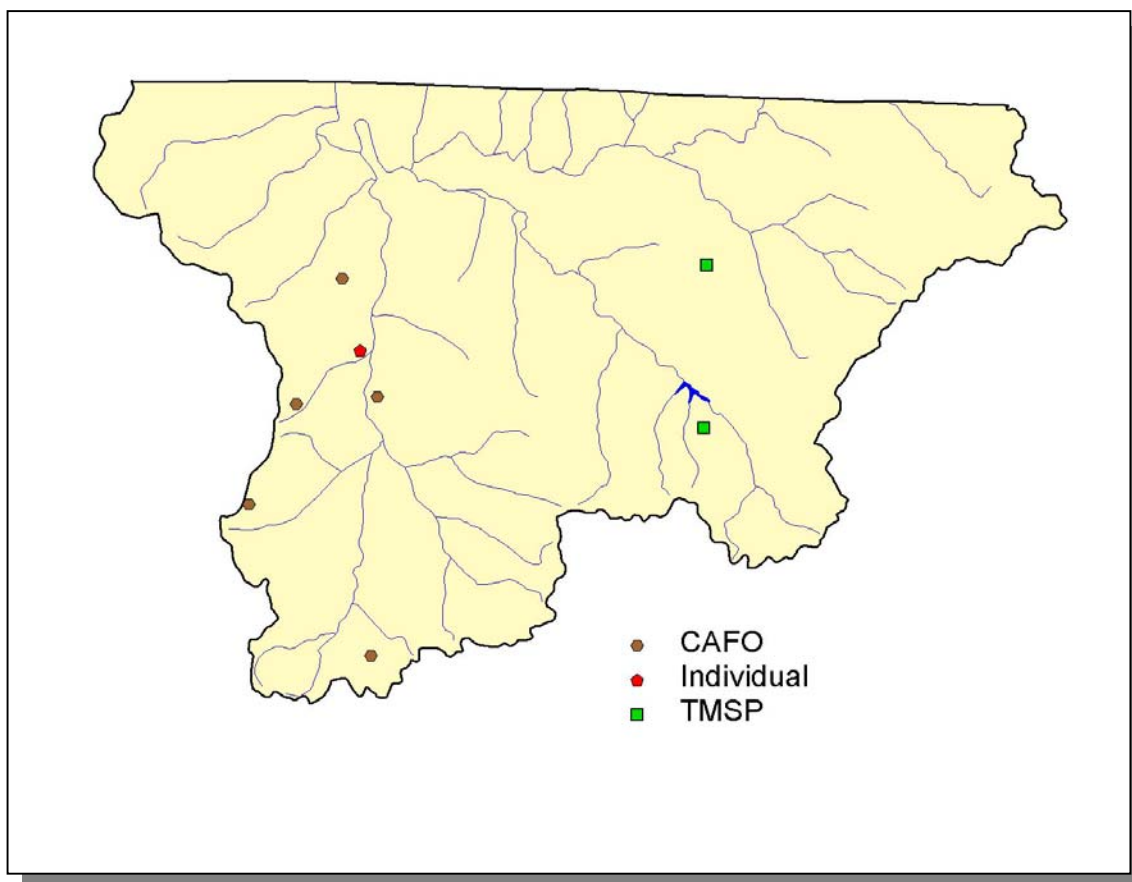


Figure 4-29. Location of Permits Issued in Subwatershed 05110020403. More information, including the names of facilities, is provided in Appendix IV.

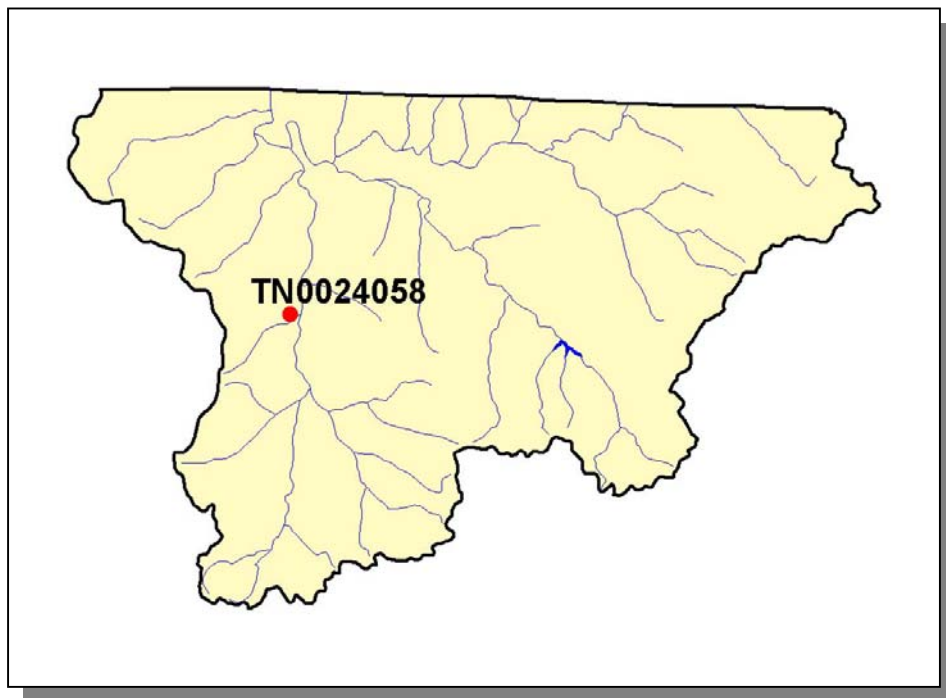


Figure 4-30. Location of Active NPDES Sites in Subwatershed 051100020403. More information, including the names of facilities, is provided in Appendix IV.

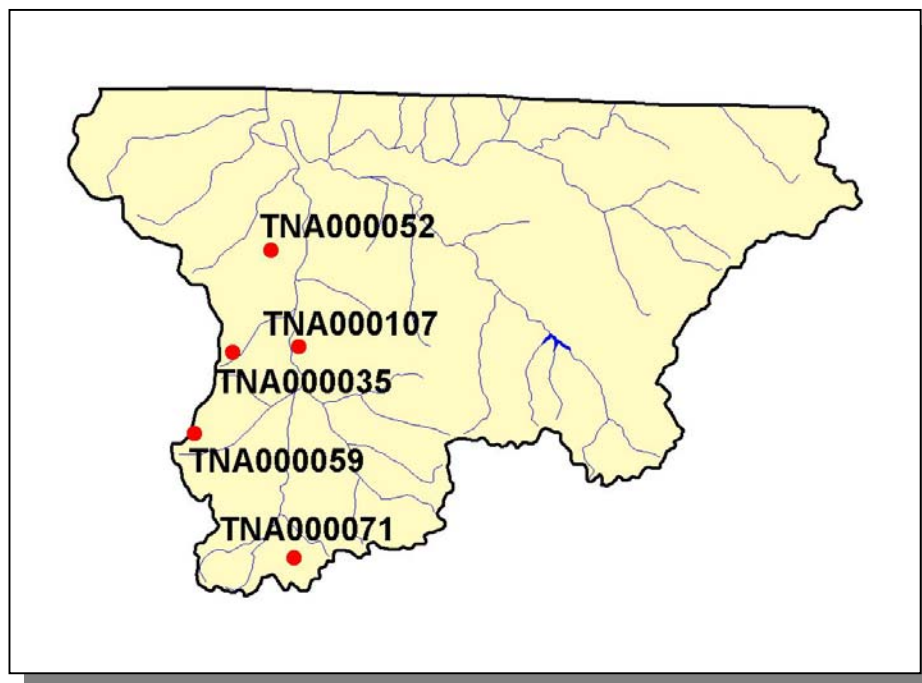


Figure 4-31. Location of Concentrated Animal Feeding Operations (CAFO) in Subwatershed 051100020403. More information, including the names of facilities, is provided in Appendix IV.

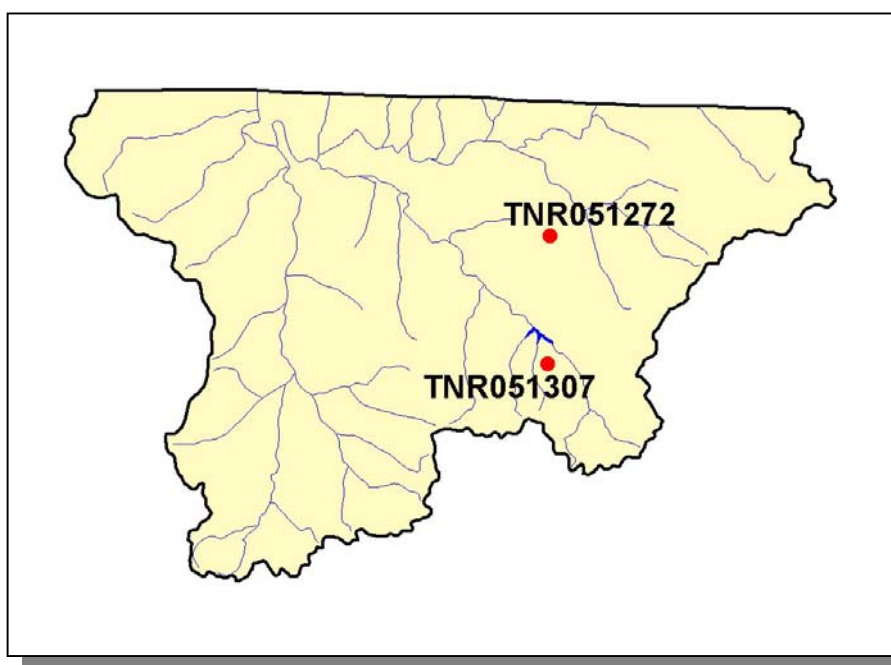


Figure 4-32. Location of TMSP Sites in Subwatershed 051100020403. More information, including the names of facilities, is provided in Appendix IV.

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4.2.B.i.b. Nonpoint Source Contributions.

LIVESTOCK COUNTS					
Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
686	10,525	15	13	220	20

Table 4-21. Summary of Livestock Count Estimates in Subwatershed 051100020403. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Clay	0	14,574	0	18	174	23
Macon	15,039	26,098	318	675	2,377	111

Table 4-22. Summary of Livestock Count Estimates in Clay and Macon Counties. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Clay	105.1	105.1	2.3	10.1
Macon				

Table 4-23. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 051100020403.

CROPS	TONS/ACRE/YEAR
Legumes (Pastureland)	0.07
Grass (Pastureland)	1.04
Grass (Hayland)	0.37
Legume (Hayland)	0.13
Legumes, Grass (Hayland)	0.47
Grass, Forbs, Legumes (Mixed Pasture)	1.33
Corn (Row Crops)	3.99
Tobacco (Row Crops)	26.08
Wheat (Close-Grown Cropland)	3.43
Other Vegetable and Truck Crop	5.48
Conservation Reserve Program Lands	0.28
Farmsteads and Ranch Headquarters	1.36

Table 4-24. Annual Estimated Total Soil Loss in Subwatershed 051100020403.

4.2.B.ii. 051100020404 (Barren River).

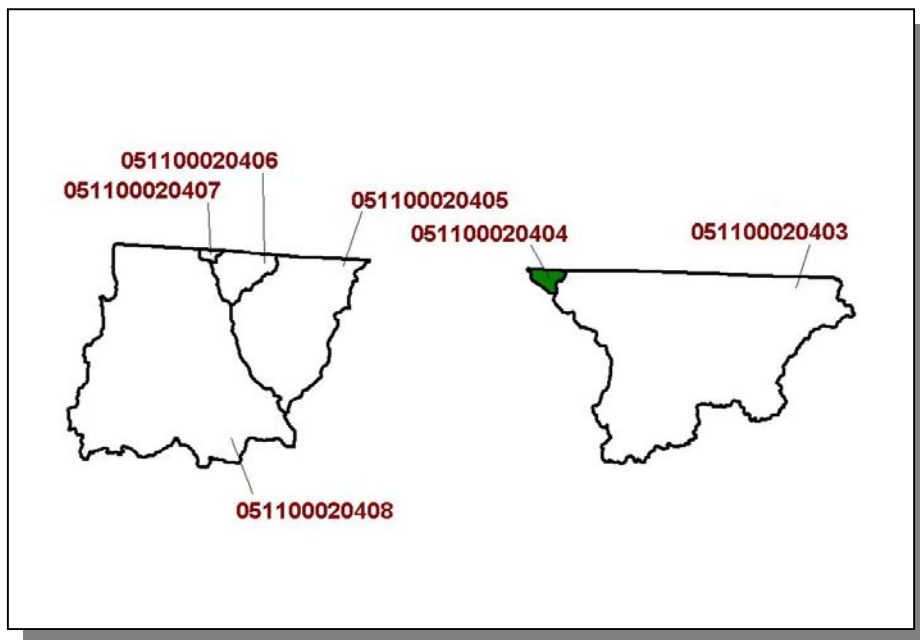


Figure 4-33. Location of Subwatershed 051100020404. All Barren River HUC-12 subwatershed boundaries are shown for reference.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Macon	15,906	17,854	20,386	0.58	92	103	118	28.3

Table 4-25. Population Estimates in Subwatershed 051100020404.

4.2.B.ii.a. Point Source Contributions.

There are no point source contributions in this subwatershed.

4.2.B.ii.b. Nonpoint Source Contributions.

There are known nonpoint source contributions in this subwatershed.

4.2.B.iii. 051100020405 (Puncheon Creek).

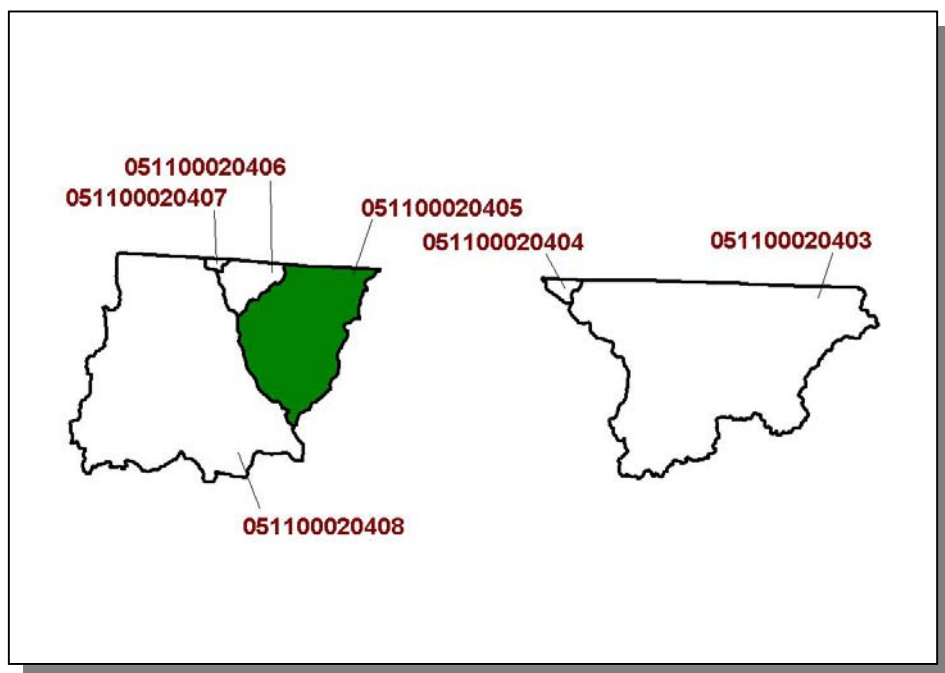


Figure 4-34. Location of Subwatershed 051100020405. All Barren River HUC-12 subwatershed boundaries are shown for reference.

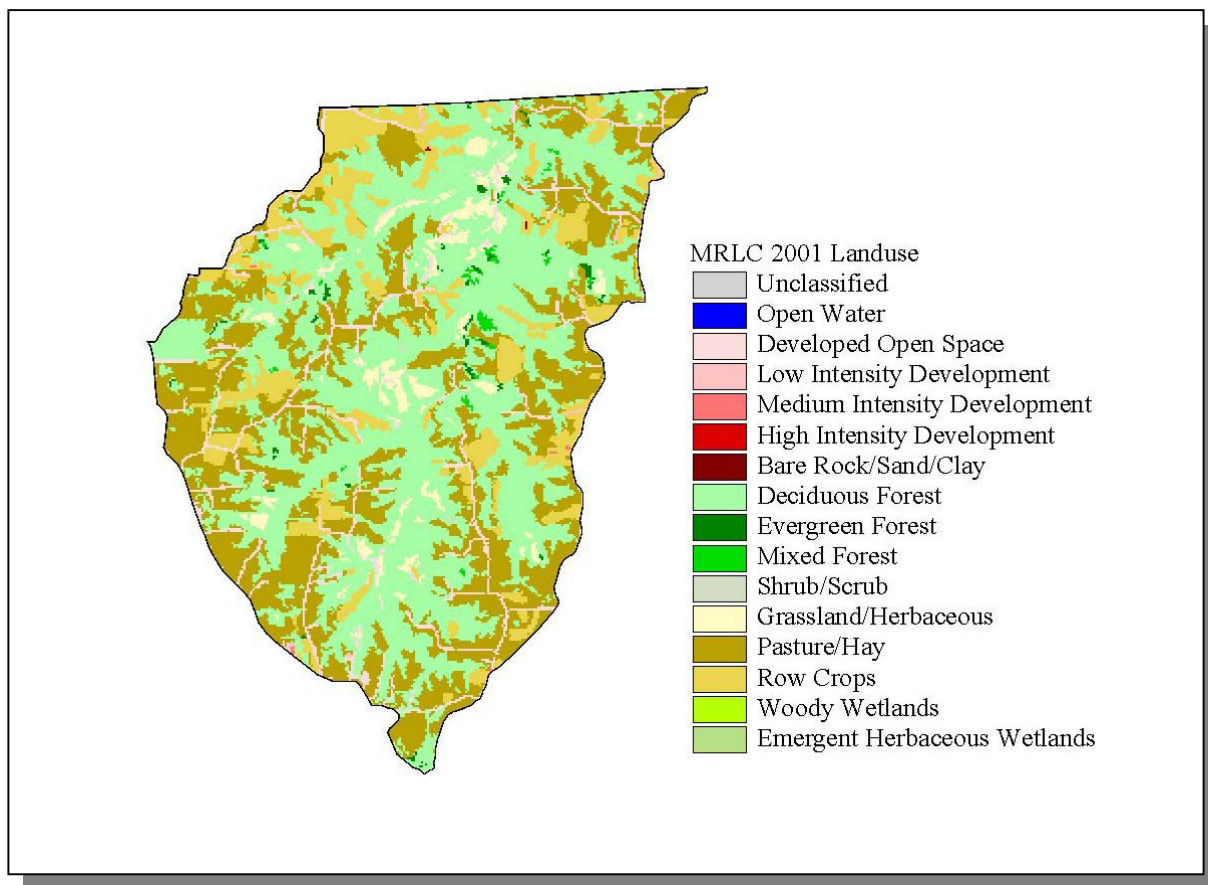


Figure 4-35. Land Use Distribution in Subwatershed 051100020405.

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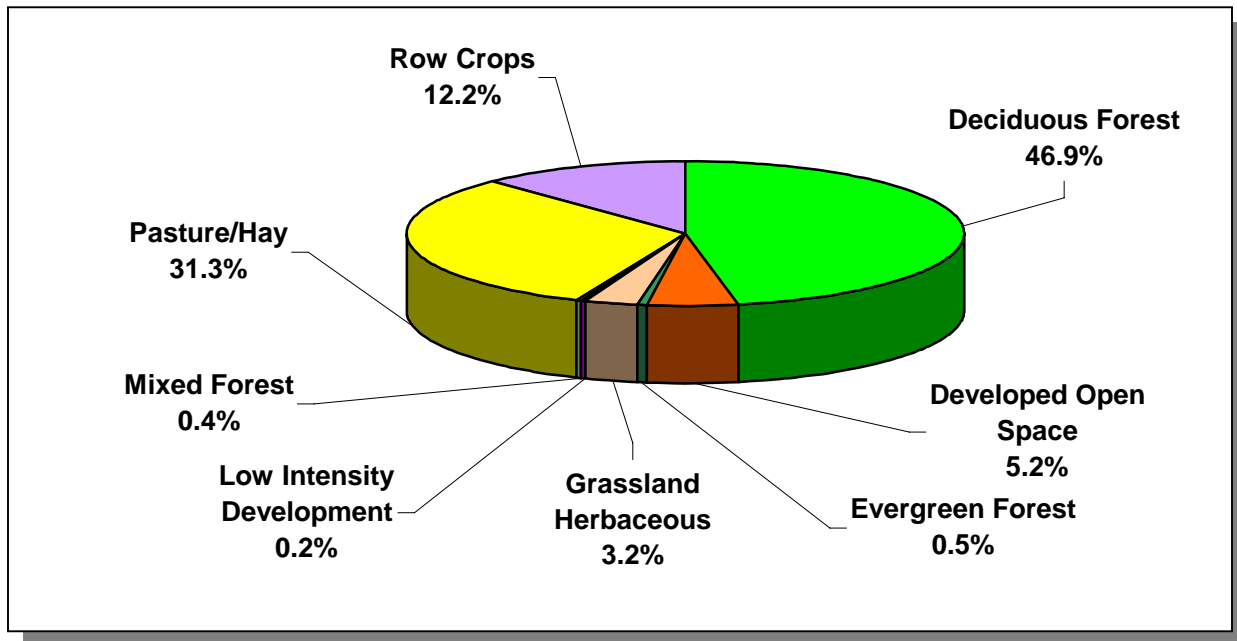


Figure 4-36. Land Use Distribution in Subwatershed 051100020405.

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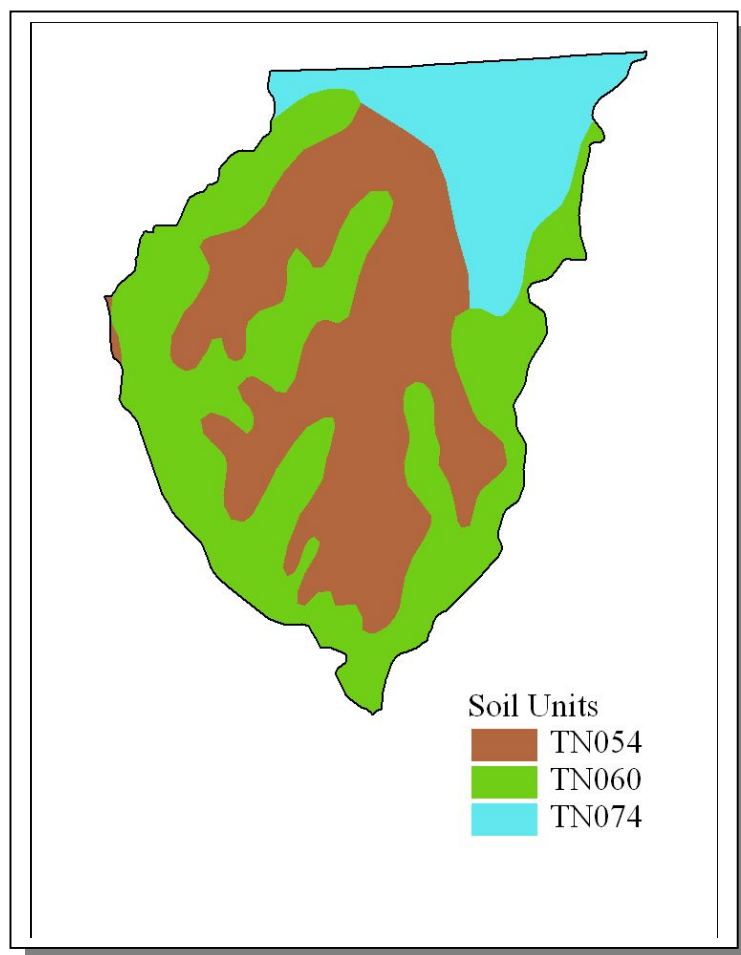


Figure 4-37. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020405.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN054	0.00	C	3.04	1.38	Loam	0.32
TN060	5.00	B	1.30	1.37	Silty Loam	0.39
TN074	7.00	B	1.44	1.36	Loam	0.33

Table 4-26. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020405. The definition of "Hydrologic Group" is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Macon	15,906	17,854	20,386	6.08	967	1,085	1,239	28.1

Table 4-27. Population Estimates in Subwatershed 051100020405.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Lafayette	Macon	3,641	1,695	1,323	348	24

Table 4-28. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 051100020405.



Figure 4-38. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 051100020405. More information, including site names and locations, and station numbers for sites located in the watershed outside of Tennessee, is provided in Appendix IV.

4.2.B.iii.a. Point Source Contributions.

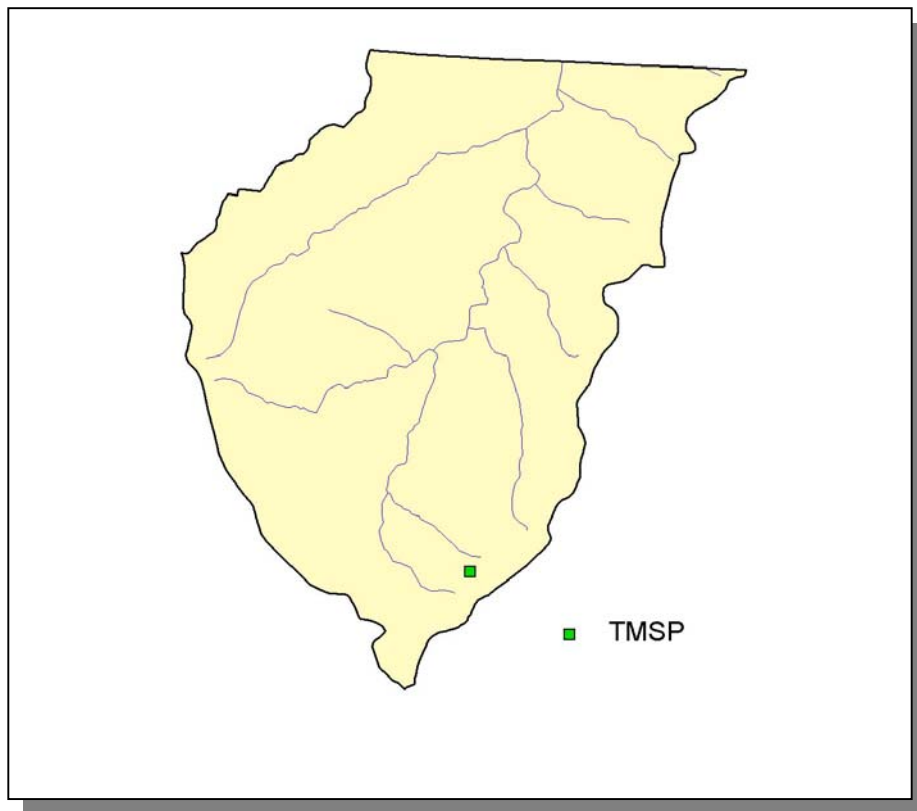


Figure 4-39. Location of Permits Issued in Subwatershed 051100020405. More information, including the names of facilities, is provided in Appendix IV.

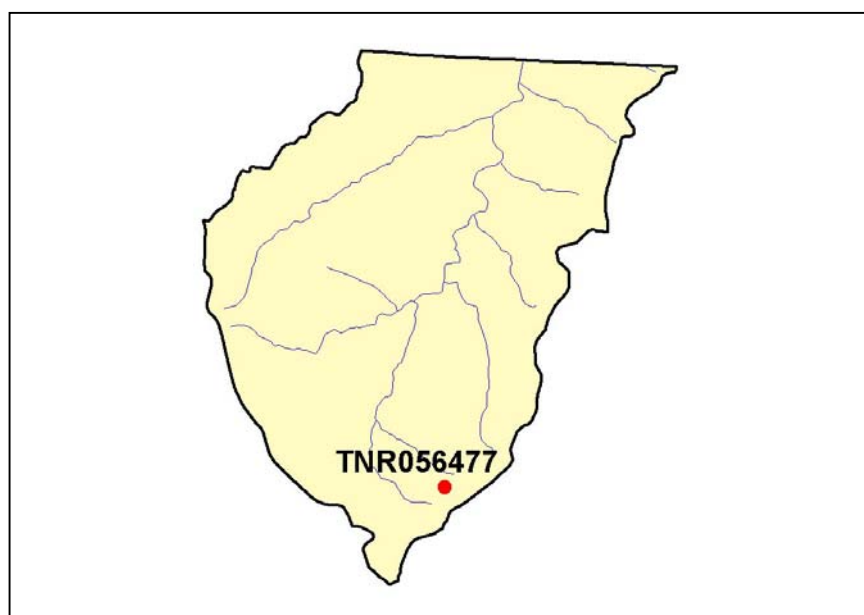


Figure 4-40. Location of TMSF Sites in Subwatershed 051100020405. More information, including the names of facilities, is provided in Appendix IV.

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4.2.B.iii.b. Nonpoint Source Contributions.

LIVESTOCK COUNTS					
Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
1,185	2,056	25	3	187	9

Table 4-29. Summary of Livestock Count Estimates in Subwatershed 051100020405. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Macon	15,039	26,098	318	675	2,377	111

Table 4-30. Summary of Livestock Count Estimates in Macon County. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)
Macon			

Table 4-31. Forest Acreage and Annual Removal Rates (1987-1994) in Macon County.

CROPS	TONS/ACRE/YEAR
Legumes (Pastureland)	0.07
Grass (Pastureland)	0.43
Grass (Hayland)	0.21
Legumes (Hayland)	0.13
Legumes, Grass (Hayland)	0.14
Grass, Forbs, Legumes (Mixed Pasture)	1.03
Corn (Row Crops)	3.99
Tobacco (Row Crops)	11.12
Wheat (Close-Grown Cropland)	3.43
Other Vegetable and Truck Crop	5.48
Conservation Reserve Program Lands	0.28
Farmsteads and Ranch Headquarters	0.16

Table 4-32. Annual Estimated Total Soil Loss in Subwatershed 051100020405.

4.2.B.iv. 051100020406 (Pinchgut Creek).

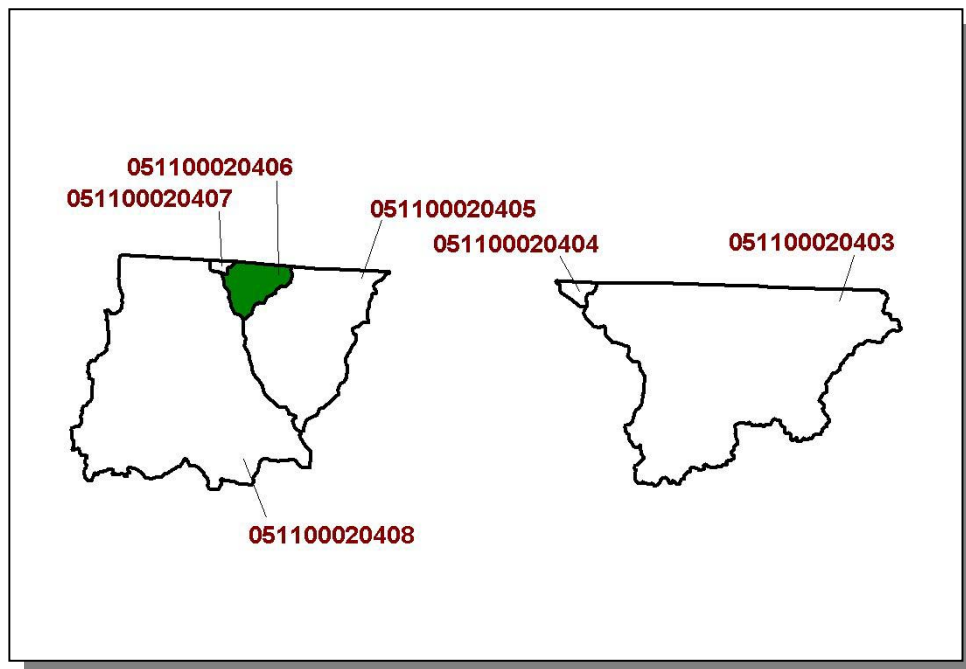


Figure 4-41. Location of Subwatershed 051100020406. All Barren River HUC-12 subwatershed boundaries are shown for reference.

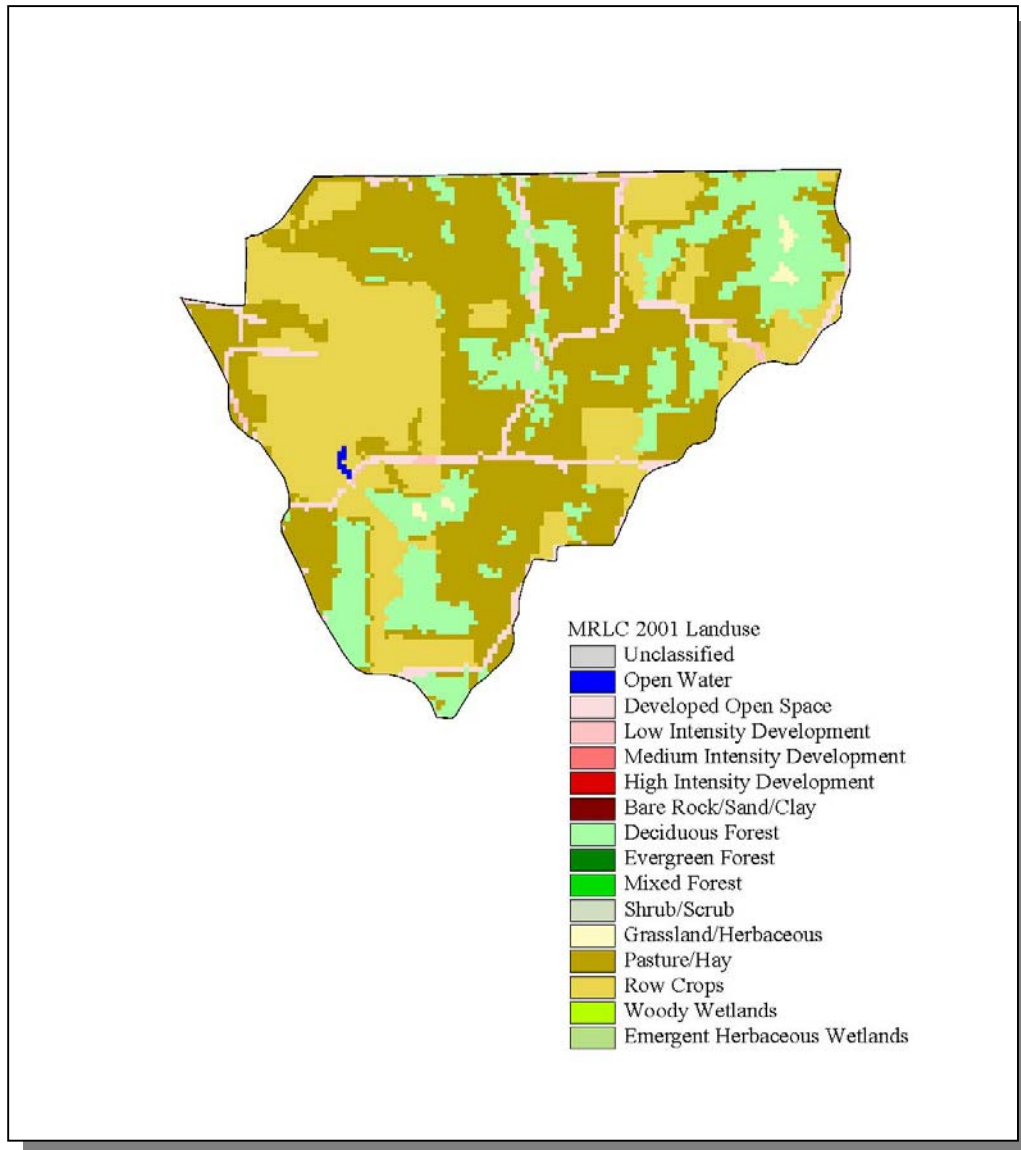


Figure 4-42. Illustration of Land Use Distribution in Subwatershed 051100020406.

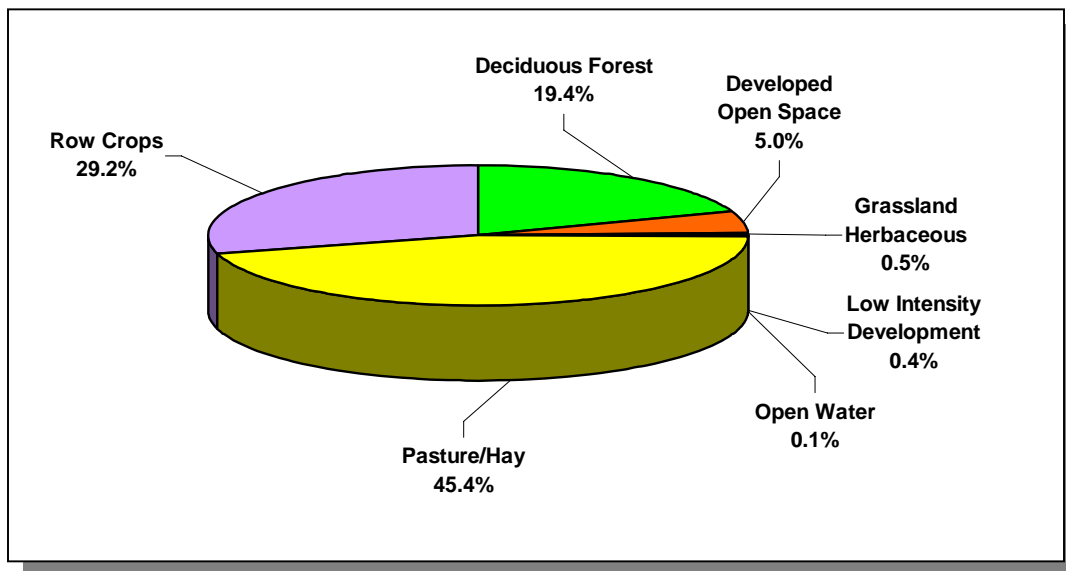


Figure 4-43. Land Use Distribution in Subwatershed 051100020406. More information is provided in Appendix IV.

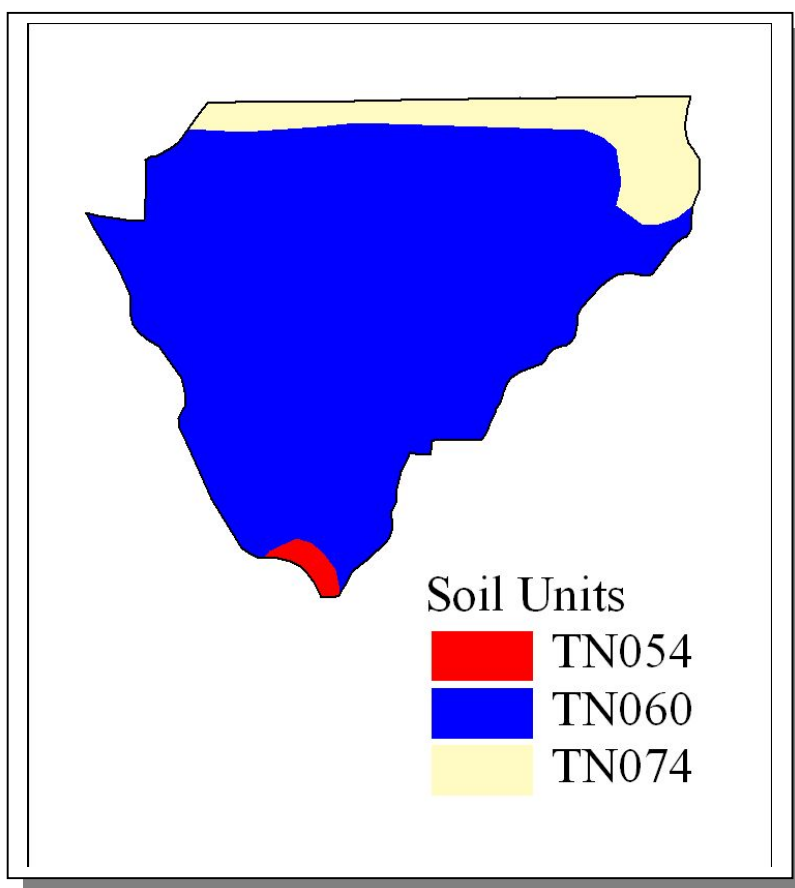


Figure 4-44. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020406.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN054	0.00	C	3.04	4.84	Loam	0.32
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN074	7.00	B	1.44	4.94	Loam	0.33

Table 4-33. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020406. The definition of “Hydrologic Group” is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Macon	15,906	17,854	20,386	1.41	235	264	302	28.5

Table 4-34. Population Estimates in Subwatershed 051100020406.

4.2.B.iv.a. Point Source Contributions.

There are no point source contributions in this subwatershed.

4.2.B.iv.b. Nonpoint Source Contributions.

LIVESTOCK COUNTS					
Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
345	599	7	<5	55	3

Table 4-35. Summary of Livestock Count Estimates in Subwatershed 051100020406. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Macon	15,039	26,098	318	675	2,377	111

Table 4-36. Summary of Livestock Count Estimates in Macon County. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Macon				

Table 4-37. Forest Acreage and Annual Removal Rates (1987-1994) in Macon County.

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CROPS	TONS/ACRE/YEAR
Legumes (Pastureland)	0.07
Grass (Pastureland)	0.43
Grass (Hayland)	0.21
Legumes (Hayland)	0.13
Legumes, Grass (Hayland)	0.14
Grass, Forbs, Legumes (Mixed Pasture)	1.03
Corn (Row Crops)	3.99
Tobacco (Row Crops)	11.12
Wheat (Close-Grown Cropland)	3.43
Other Vegetable and Truck Crop	5.48
Conservation Reserve Program Lands	0.28
Farmsteads and Ranch Headquarters	0.16

Table 4-38. Annual Estimated Total Soil Loss in Subwatershed 051100020406.

4.2.B.v. 051100020407 (Long Hungry Creek).

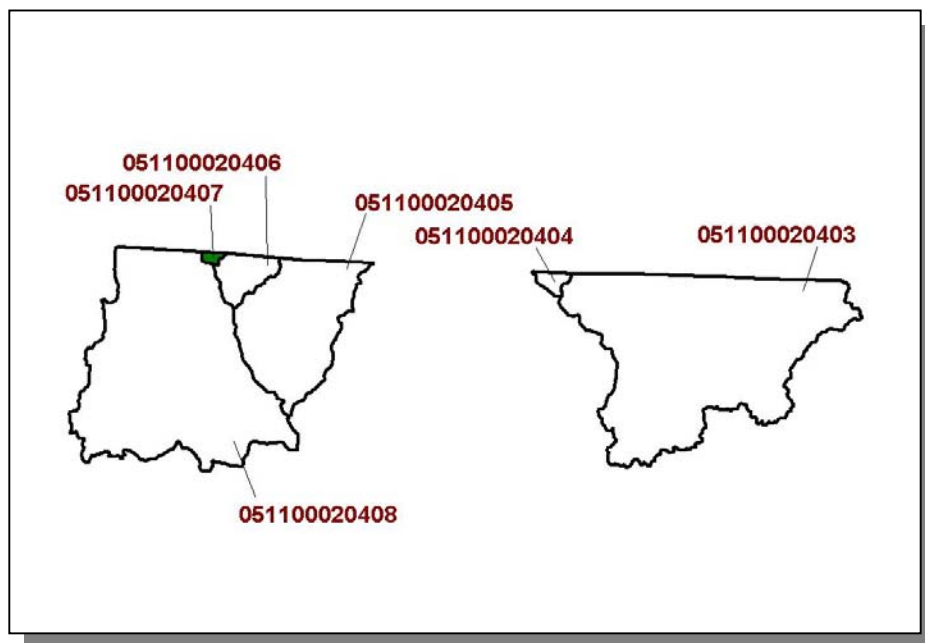


Figure 4-45. Location of Subwatershed 051100020407. All Barren River HUC-12 subwatershed boundaries are shown for reference.

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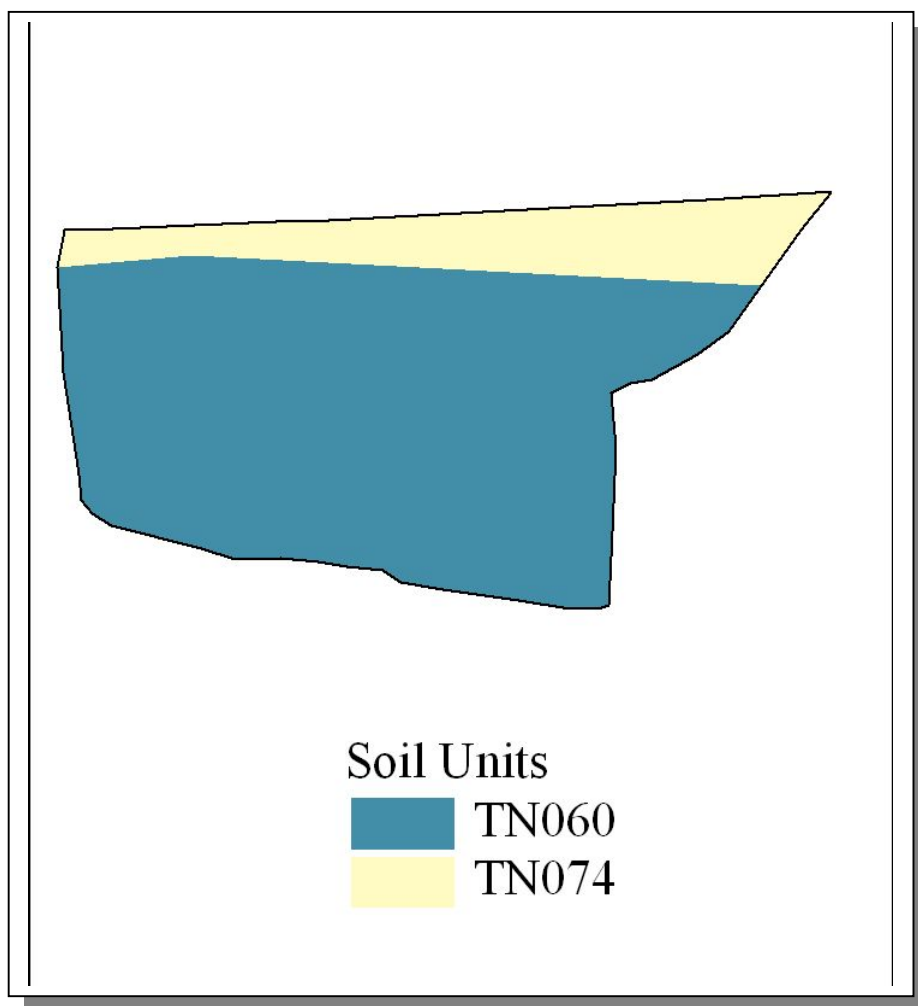


Figure 4-46. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020407.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN074	7.00	B	1.44	4.94	Loam	0.33

Table 4-39. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020407. The definition of “Hydrologic Group” is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Macon	15,906	17,854	20,386	0.29	47	52	60	27.7

Table 4-40. Population Estimates in Subwatershed 051100020407.

4.2.B.v.a. Point Source Contributions.

There are no point source contributions in this subwatershed.

4.2.B.v.b. Nonpoint Source Contributions.

LIVESTOCK COUNTS			
Beef Cow	Cattle	Milk Cow	Hogs
42	73	<5	7

Table 4-41. Summary of Livestock Count Estimates in Subwatershed 051100020407. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Macon	15,039	26,098	318	675	2,377	111

Table 4-42. Summary of Livestock Count Estimates in Macon County. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

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	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Macon				

Table 4-43. Forest Acreage and Annual Removal Rates (1987-1994) in Macon County.

CROPS	TONS/ACRE/YEAR
Legumes (Pastureland)	0.07
Grass (Pastureland)	0.43
Grass (Hayland)	0.21
Legumes (Hayland)	0.13
Legumes, Grass (Hayland)	0.14
Grass, Forbs, Legumes (Mixed Pasture)	1.03
Corn (Row Crops)	3.99
Tobacco (Row Crops)	11.12
Wheat (Close-Grown Cropland)	3.43
Other Vegetable and Truck Crops	5.48
Conservation Reserve Program Lands	0.28
Farmsteads and Ranch Headquarters	0.16

Table 4-44. Annual Estimated Total Soil Loss in Subwatershed 051100020407.

4.2.B.vi. 051100020408 (Long Creek).

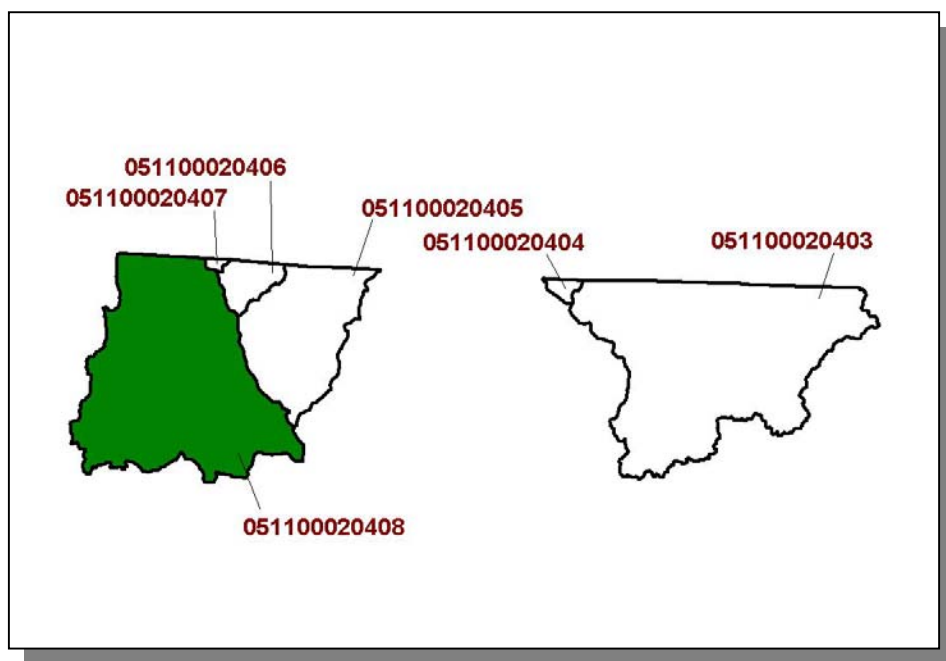


Figure 4-47. Location of Subwatershed 051100020408. All Barren River HUC-12 subwatershed boundaries are shown for reference.

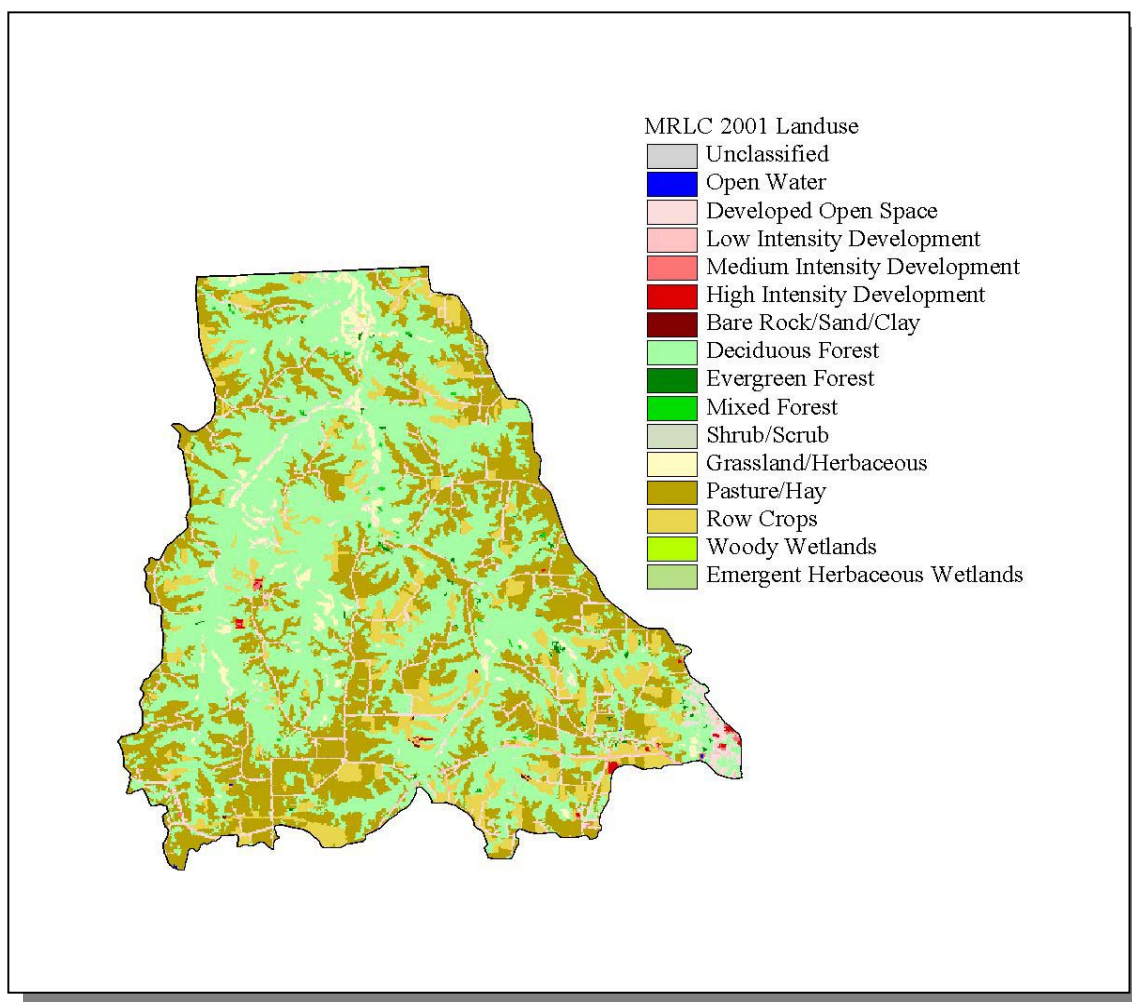


Figure 4-48. Illustration of Land Use Distribution in Subwatershed 051100020408.

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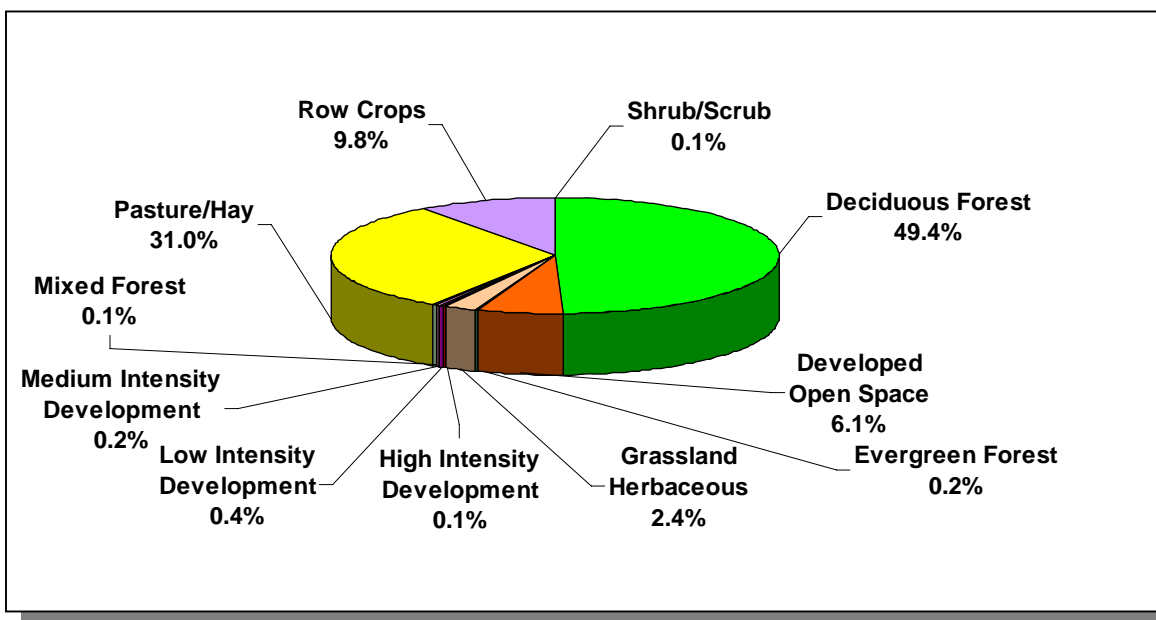


Figure 4-49. Land Use Distribution in Subwatershed 051100020408. More information is provided in Appendix IV.

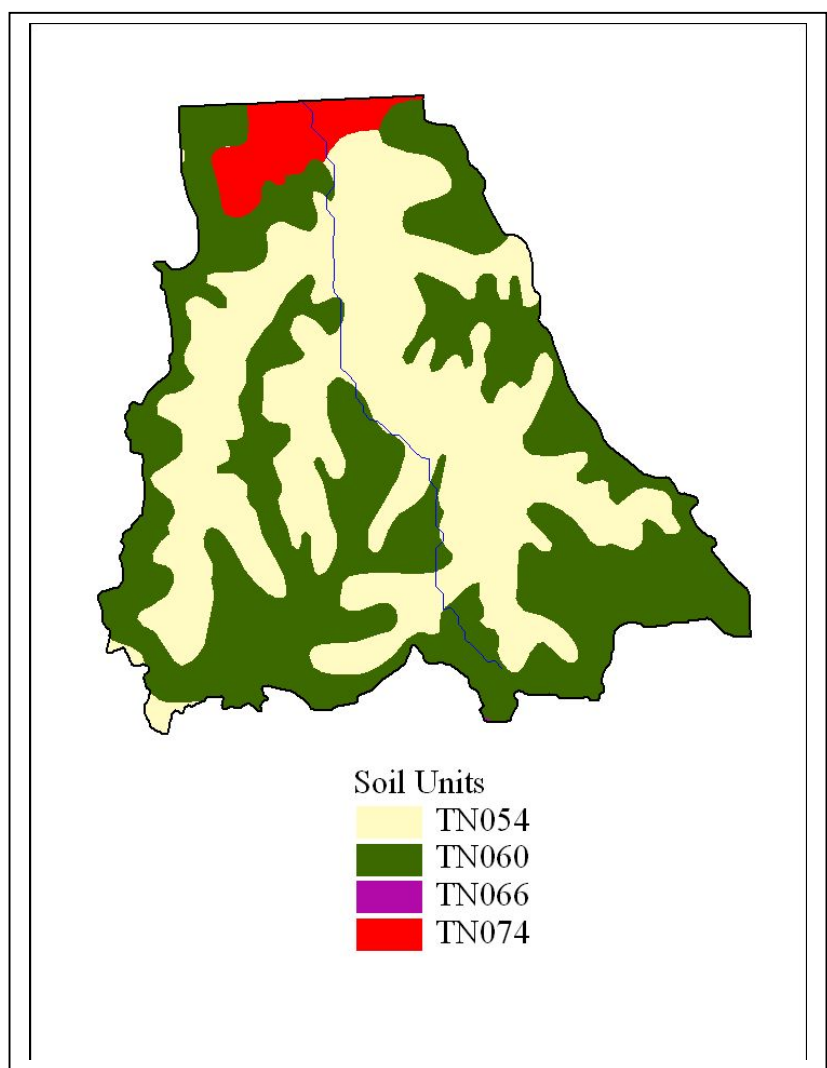


Figure 4-50 STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020408.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN054	0.00	C	3.04	4.84	Loam	0.32
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN066	0.00	B	2.62	4.75	Loam	0.28
TN074	7.00	B	1.44	4.94	Loam	0.33

Table 4-45. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020408. The definition of "Hydrologic Group" is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Macon	15,906	17,854	20,386	15.96	2,539	2,850	3,254	28.2

Table 4-46. Population Estimates in Subwatershed 051100020408.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Lafayette	Macon	3,641	1,695	1,323	348	24

Table 4-47. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 051100020408.

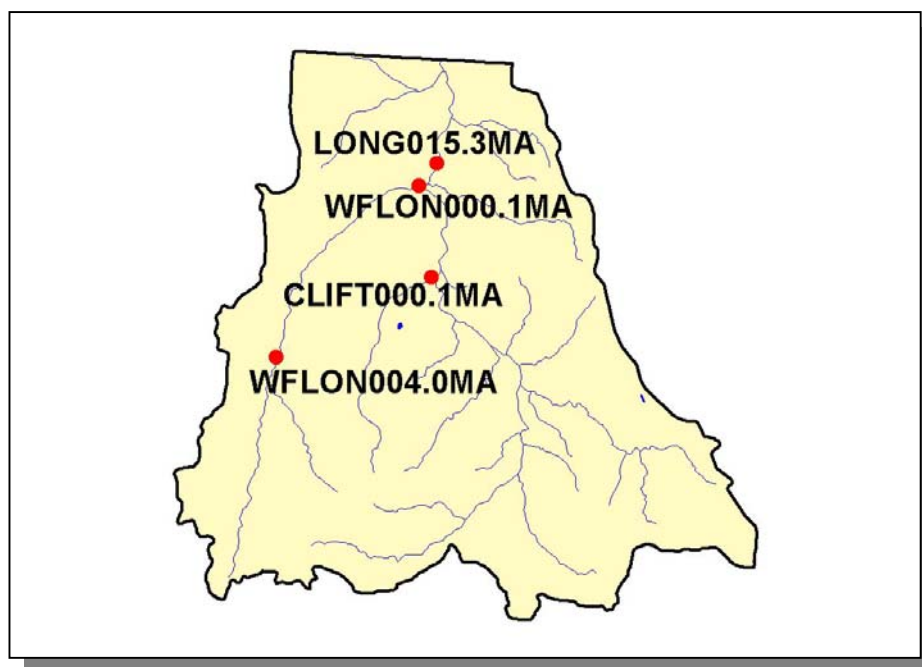


Figure 4-51. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 051100020408. More information, including site names and locations, and station numbers for sites located in the watershed outside of Tennessee, is provided in Appendix IV.

4.2.B.vi.a. Point Source Contributions.

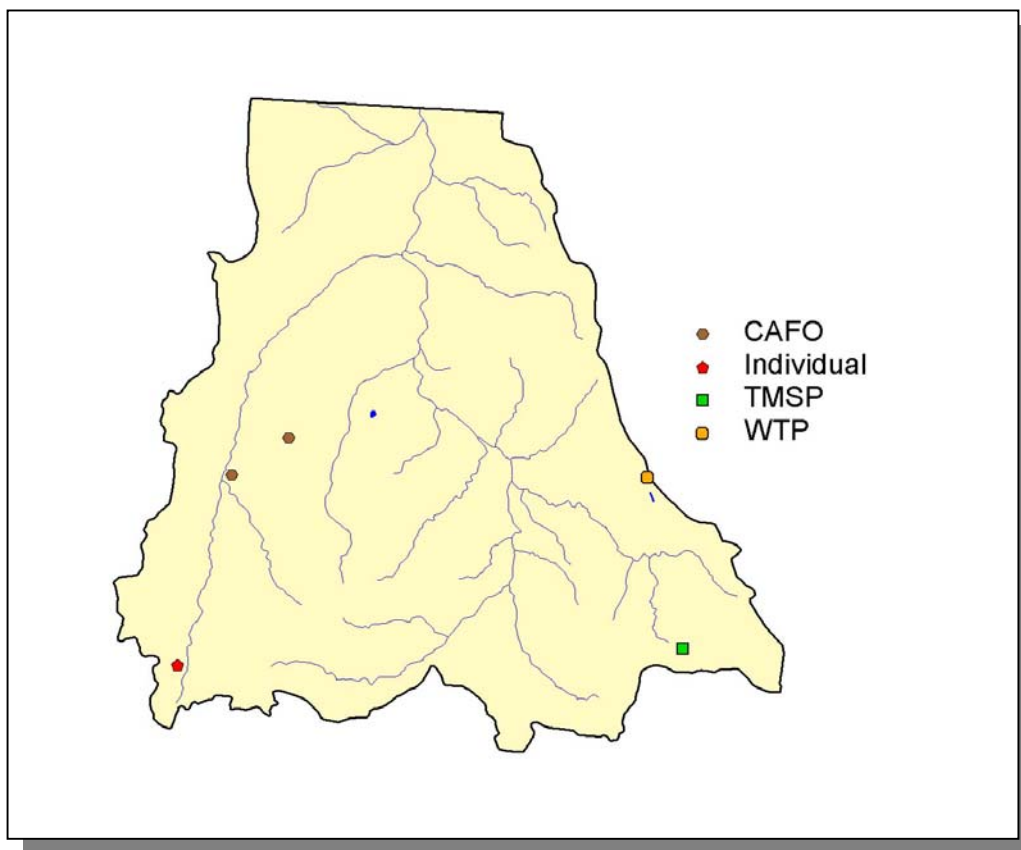


Figure 4-52. Location of Permits Issued in Subwatershed 051100020408. More information, including the names of facilities, is provided in Appendix IV.

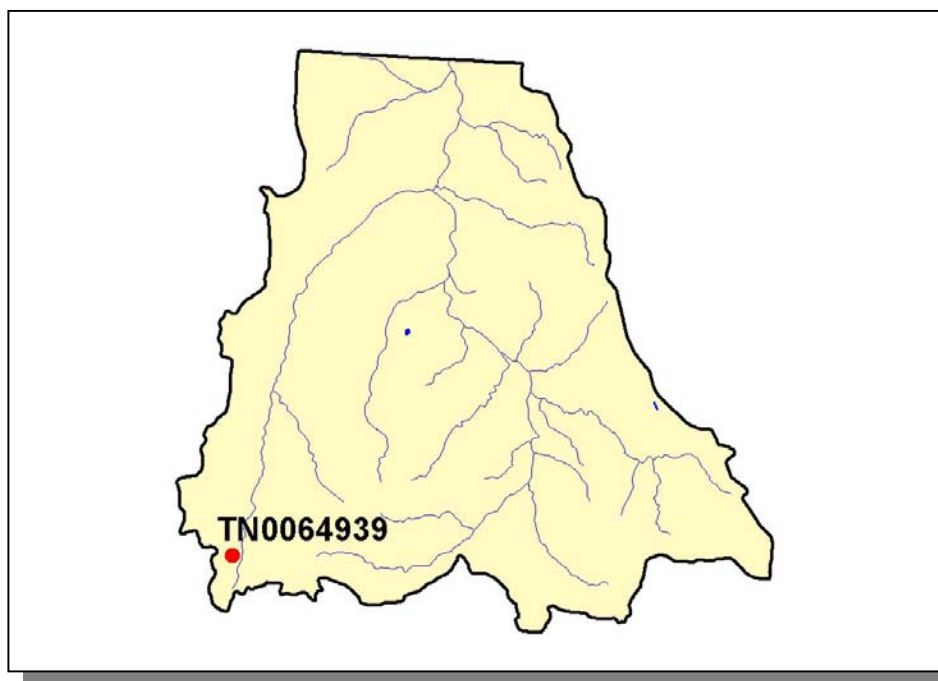


Figure 4-53. Location of Active NPDES Sites in Subwatershed 051100020408. More information, including the names of facilities, is provided in Appendix IV.



Figure 4-54. Location of Concentrated Animal Feeding Operations (CAFO) in Subwatershed 051100020408. More information, including the names of facilities, is provided in Appendix IV



Figure 4-55. Location of Water Treatment Plants in Subwatershed 051100020408. More information, including the names of facilities, is provided in Appendix IV.



Figure 4-56. Location of TMSP Sites in Subwatershed 051100020408. More information, including the names of facilities, is provided in Appendix IV.

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4.2.B.vi.b. Nonpoint Source Contributions.

LIVESTOCK COUNTS					
Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
2,608	4,526	55	6	412	19

Table 4-48. Summary of Livestock Count Estimates in Subwatershed 051100020408. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Macon	1,5039	26,098	318	675	2,377	111

Table 4-49. Summary of Livestock Count Estimates in Macon County. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Macon				

Table 4-50. Forest Acreage and Annual Removal Rates (1987-1994) in Macon County.

CROPS	TONS/ACRE/YEAR
Legumes (Pastureland)	0.07
Grass (Pastureland)	0.43
Grass (Hayland)	0.21
Legumes (Hayland)	0.13
Legumes, Grass (Hayland)	0.14
Grass, Forbs, Legumes (Mixed Pasture)	1.03
Corn (Row Crops)	3.99
Tobacco (Row Crops)	11.12
Wheat (Close-Grown Cropland)	3.43
Other Vegetable and Truck Crops	5.48
Conservation Reserve Program Lands	0.28
Farmsteads and Ranch Headquarters	0.16

Table 4-51. Annual Estimated Total Soil Loss in Subwatershed 051100020408.

4.2.C. 0511000205.

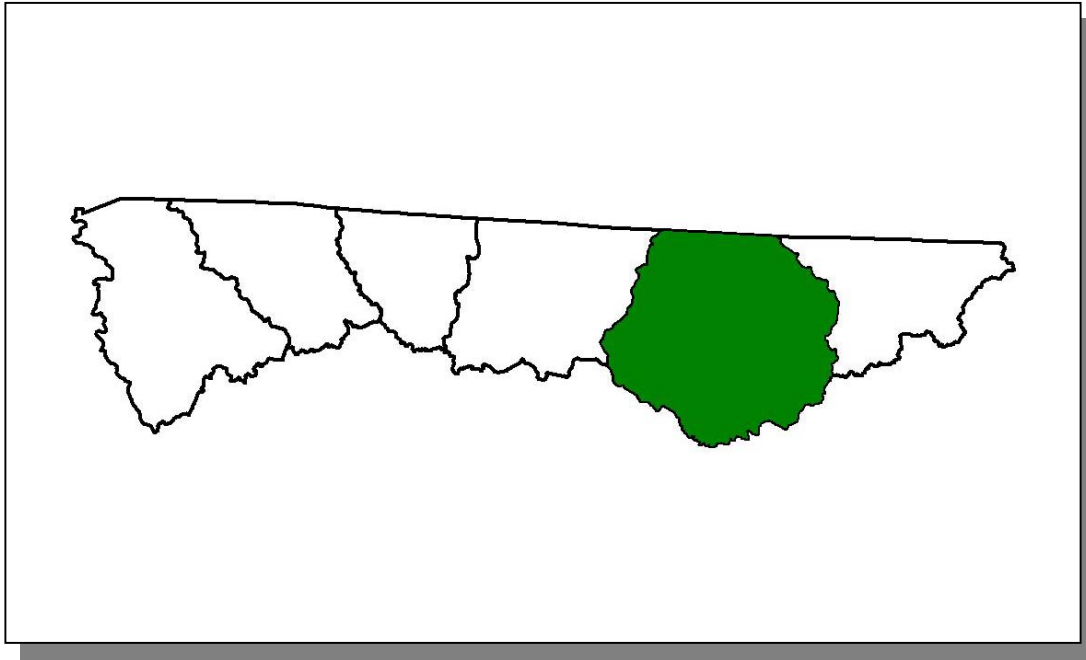


Figure 4-57. Location of Subwatershed 0511000205. All Barren River HUC-10 subwatershed boundaries are shown for reference.

4.2.C.i. 051100020501 (Salt Lick Creek).

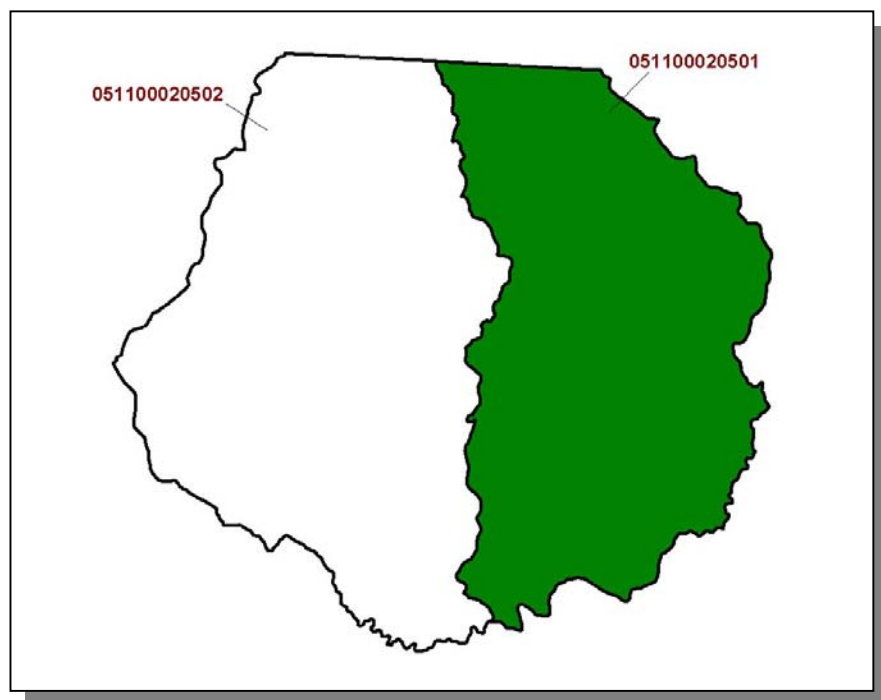


Figure 4-58. Location of Subwatershed 051100020501. All Barren River HUC-12 subwatershed boundaries are shown for reference.

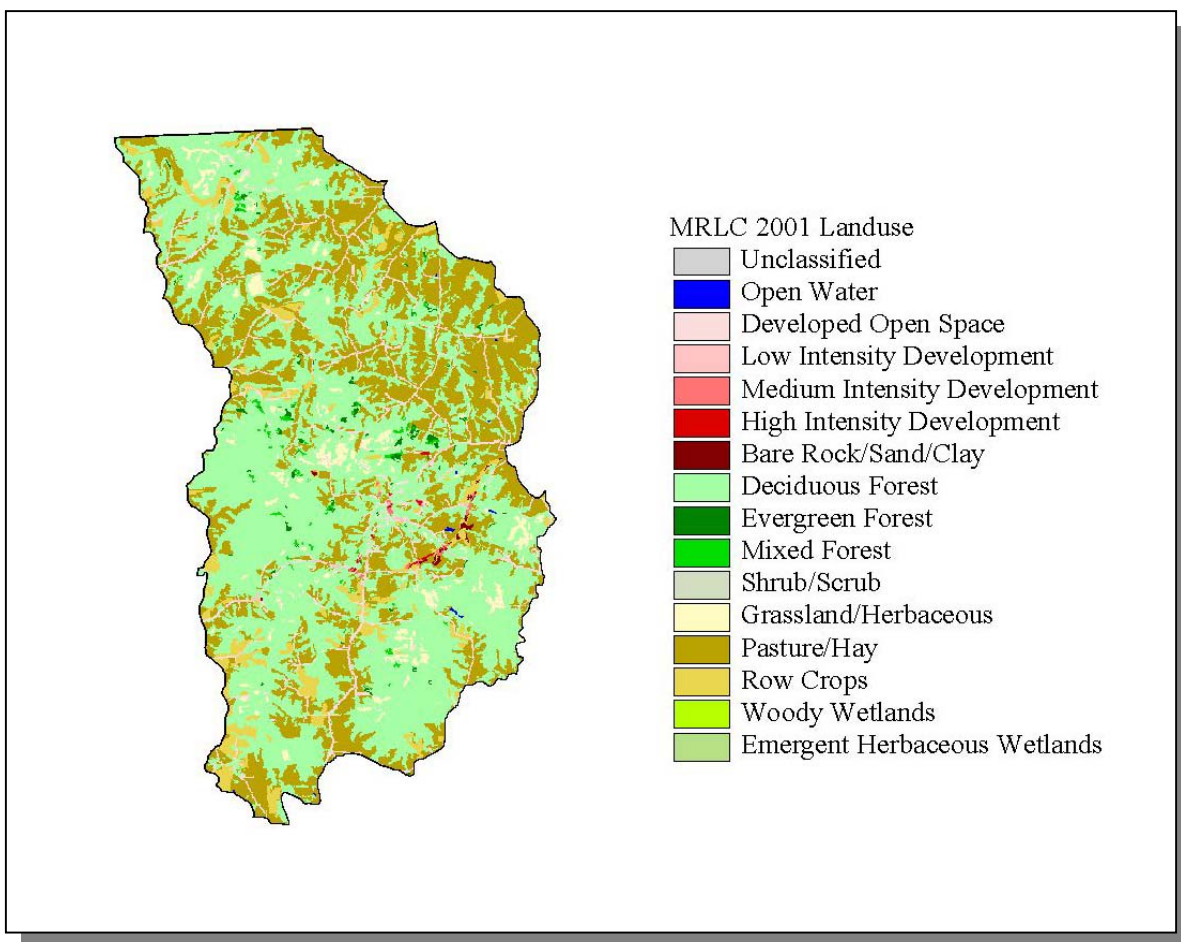


Figure 4-59. Illustration of Land Use Distribution in Subwatershed 051100020501.

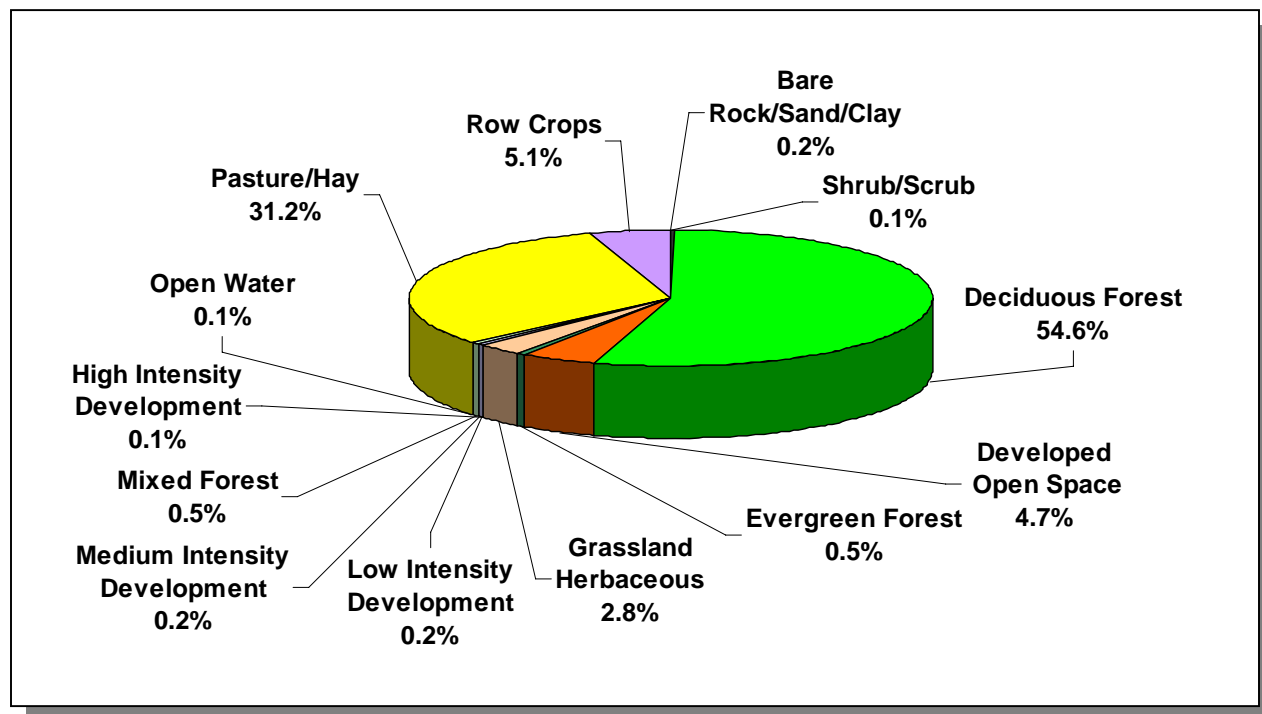


Figure 4-60. Land Use Distribution in Subwatershed 051100020501. More information is provided in Appendix IV.

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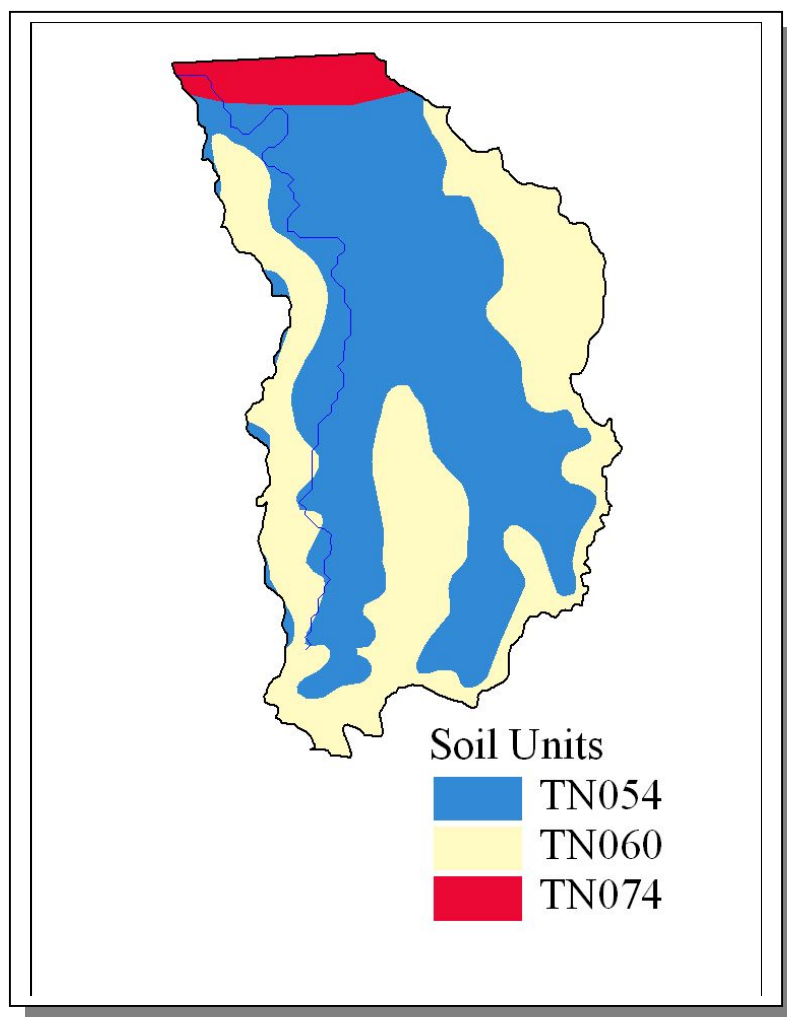


Figure 4-61. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020501.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN054	0.00	C	3.04	4.84	Loam	0.32
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN074	7.00	B	1.44	4.94	Loam	0.33

Table 4-52. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020501. The definition of "Hydrologic Group" is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Macon	15,906	17,854	20,386	16.32	2,596	2,914	3,327	28.2

Table 4-53. Population Estimates in Subwatershed 051100020501.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Red Boiling Springs	Macon	905	420	37	376	7

Table 4-54. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 051100020501.

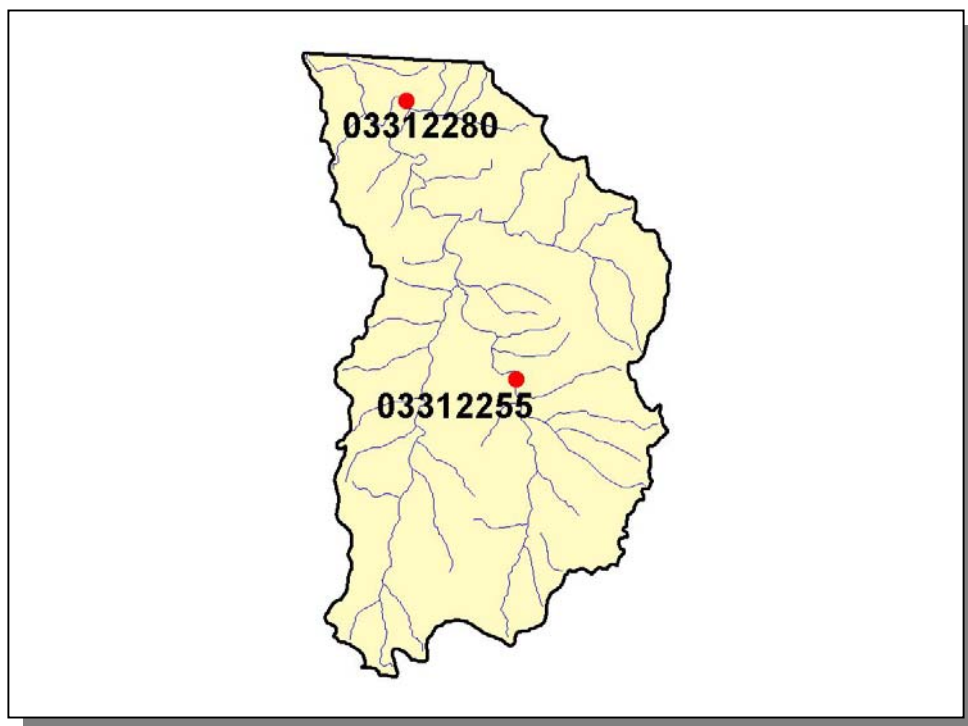


Figure 4-62. Location of Historical Streamflow Data Collection Sites in Subwatershed 051100020501. More information is provided in Appendix IV.



Figure 4-63. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 051100020501. More information, including site names and locations, and station numbers for sites located in the watershed outside of Tennessee, is provided in Appendix IV.

4.2.C.i.a. Point Source Contributions.

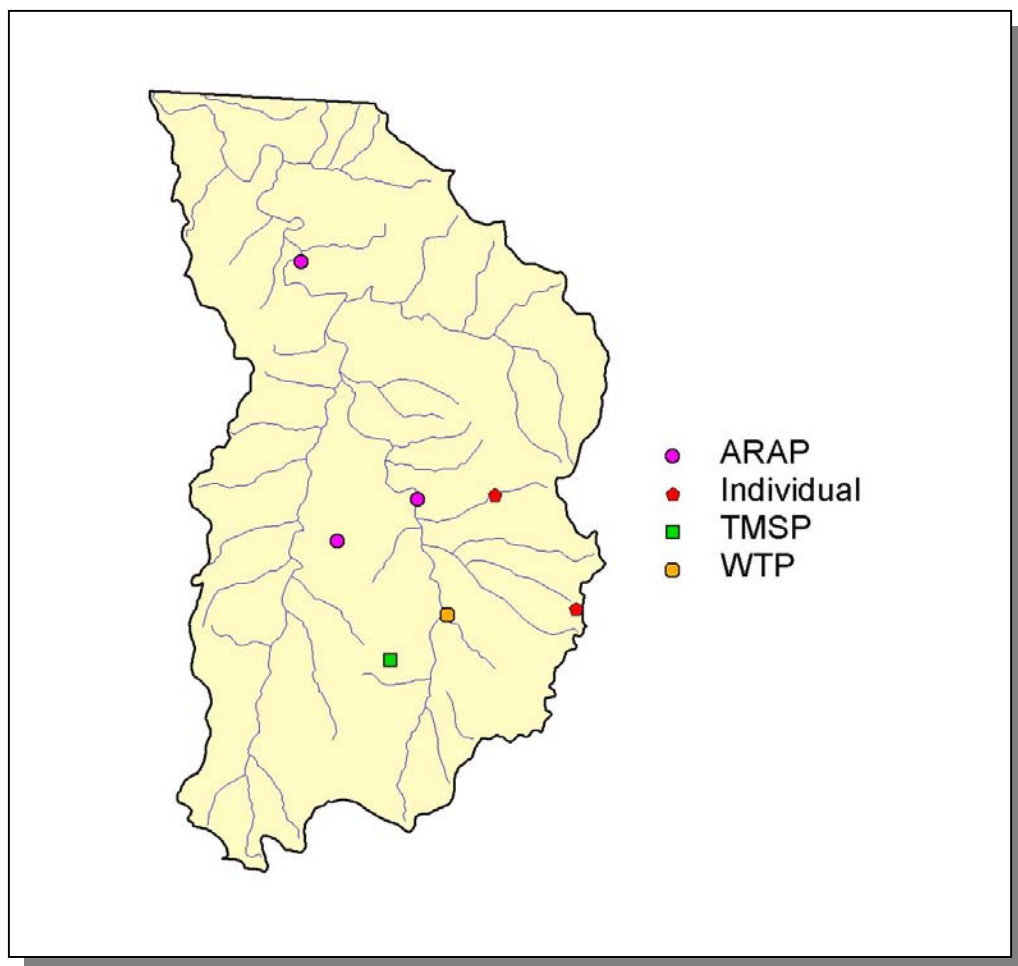


Figure 4-64. Location of Permits Issued in Subwatershed 051100020501. More information, including the names of facilities, is provided in Appendix IV.

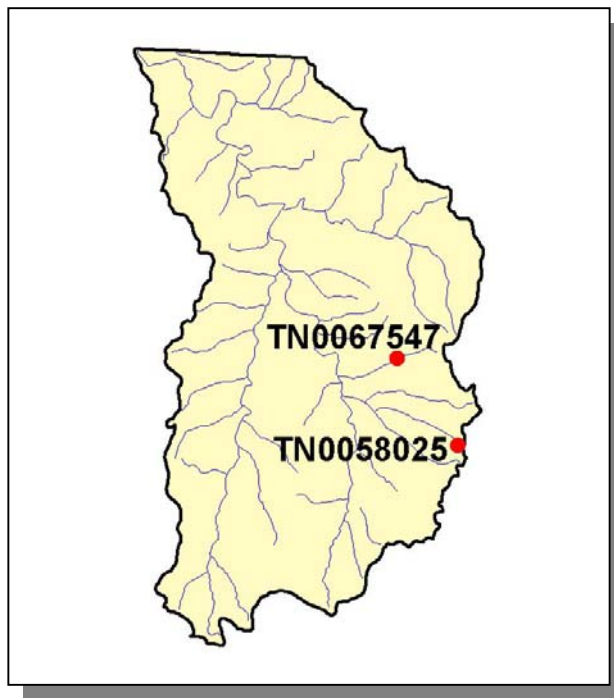


Figure 4-65. Location of Active NPDES Sites in Subwatershed 051100020501. More information, including the names of facilities, is provided in Appendix IV.

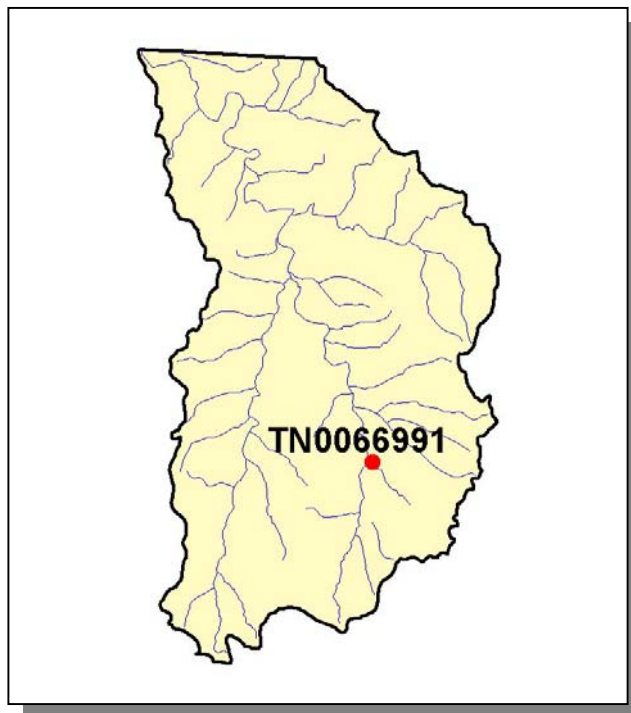


Figure 4-66. Location of Water Treatment Plants in Subwatershed 051100020501. More information, including the names of facilities, is provided in Appendix IV.

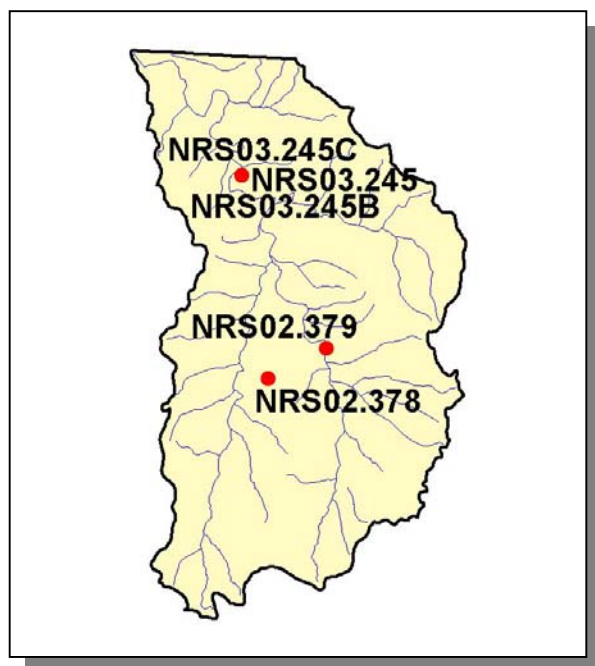


Figure 4-67. Location of Aquatic Resource Alteration Permit (ARAP) Sites (Individual Permits) in Subwatershed 051100020501. More information is provided in Appendix IV.

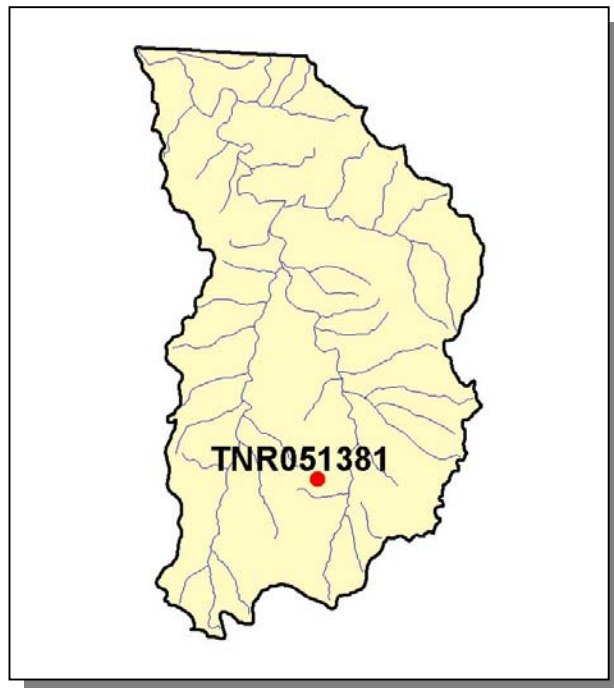


Figure 4-68. Location of TMSF Sites in Subwatershed 051100020501. More information, including the names of facilities, is provided in Appendix IV.

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4.2.C.i.b. Nonpoint Source Contributions.

LIVESTOCK COUNTS					
Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
2,688	4,669	57	6	425	20

Table 4-55. Summary of Livestock Count Estimates in Subwatershed 051100020501. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Clay	0	14,574	0	18	174	23
Macon	15,039	26,098	318	675	2,377	111

Table 4-56. Summary of Livestock Count Estimates in Clay and Macon Counties. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Clay	105.1	105.1	2.3	10.1
Macon				

Table 4-57. Forest Acreage and Annual Removal Rates (1987-1994) in Clay and Macon Counties.

CROPS	TONS/ACRE/YEAR
Legumes (Pastureland)	0.07
Grass (Pastureland)	0.43
Grass (Hayland)	0.21
Legumes (Hayland)	0.13
Legumes, Grass (Hayland)	0.14
Grass, Forbs, Legumes (Mixed Pasture)	1.04
Corn (Row Crops)	3.99
Tobacco (Row Crops)	11.12
Wheat (Close-Grown Cropland)	3.43
Other Vegetable and Truck Crops	5.48
Conservation Reserve Program Lands	0.28
Farmsteads and Ranch Headquarters	0.16

Table 4-58. Annual Estimated Total Soil Loss in Subwatershed 0604000401.

4.2.C.ii. 051100020502 (Long Fork).

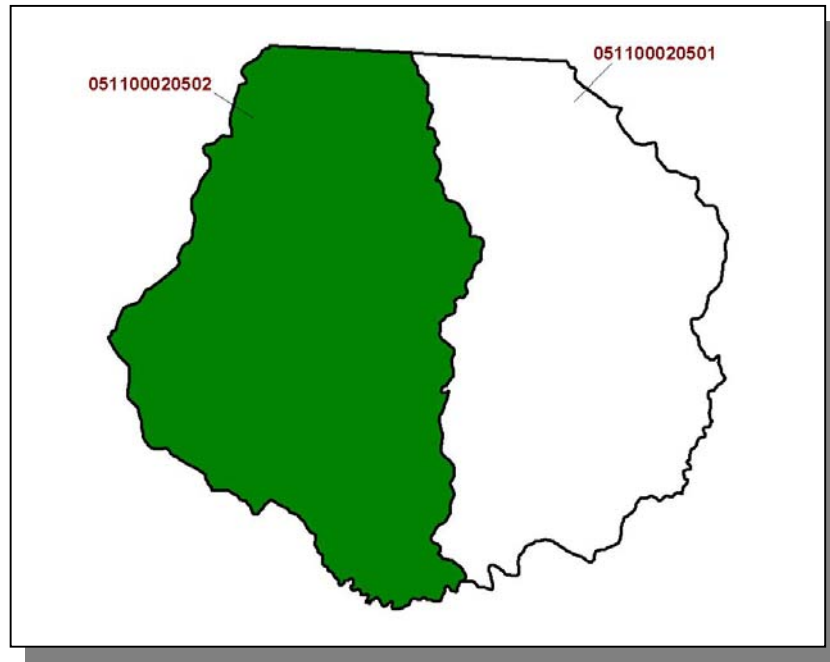


Figure 4-69. Location of Subwatershed 051100020502. All Barren River HUC-12 subwatershed boundaries are shown for reference.

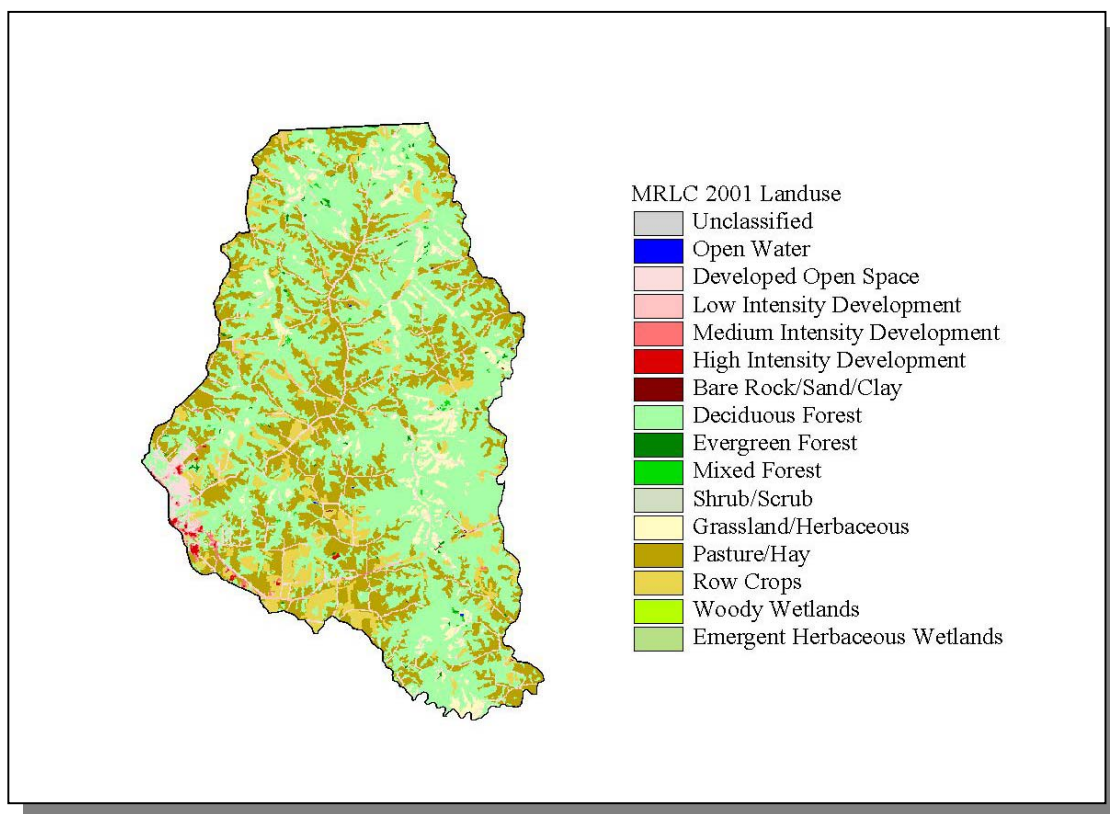


Figure 4-70. Illustration of Land Use Distribution in Subwatershed 051100020502.

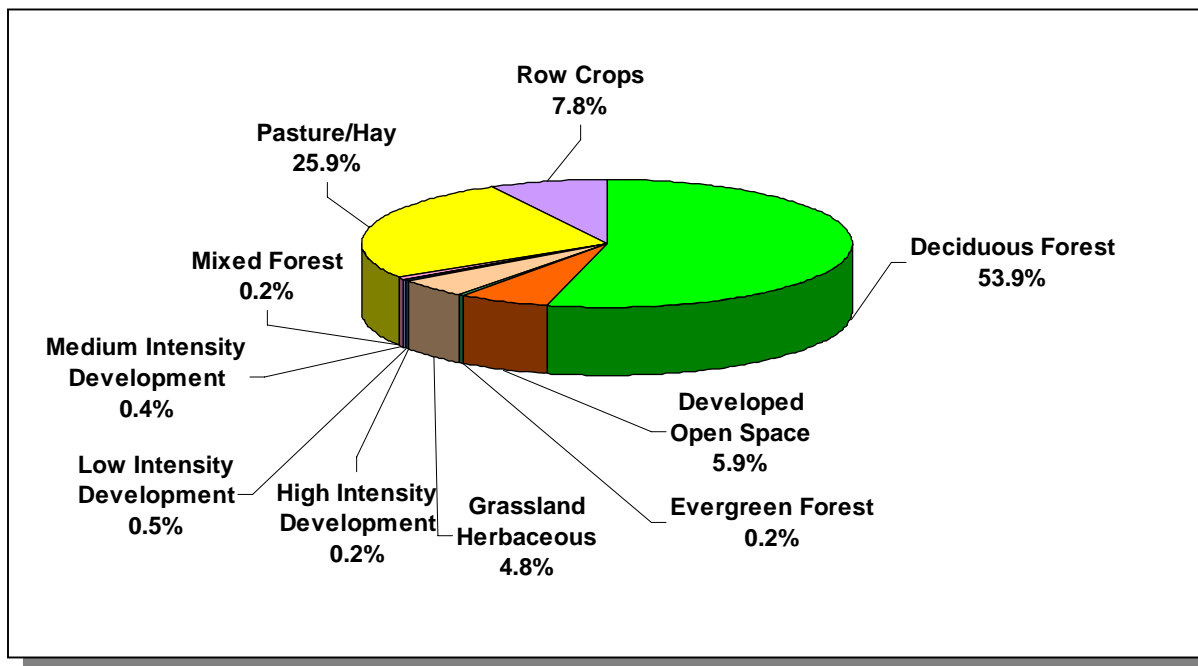


Figure 4-71. Land Use Distribution in Subwatershed 051100020502. More information is provided in Appendix IV.

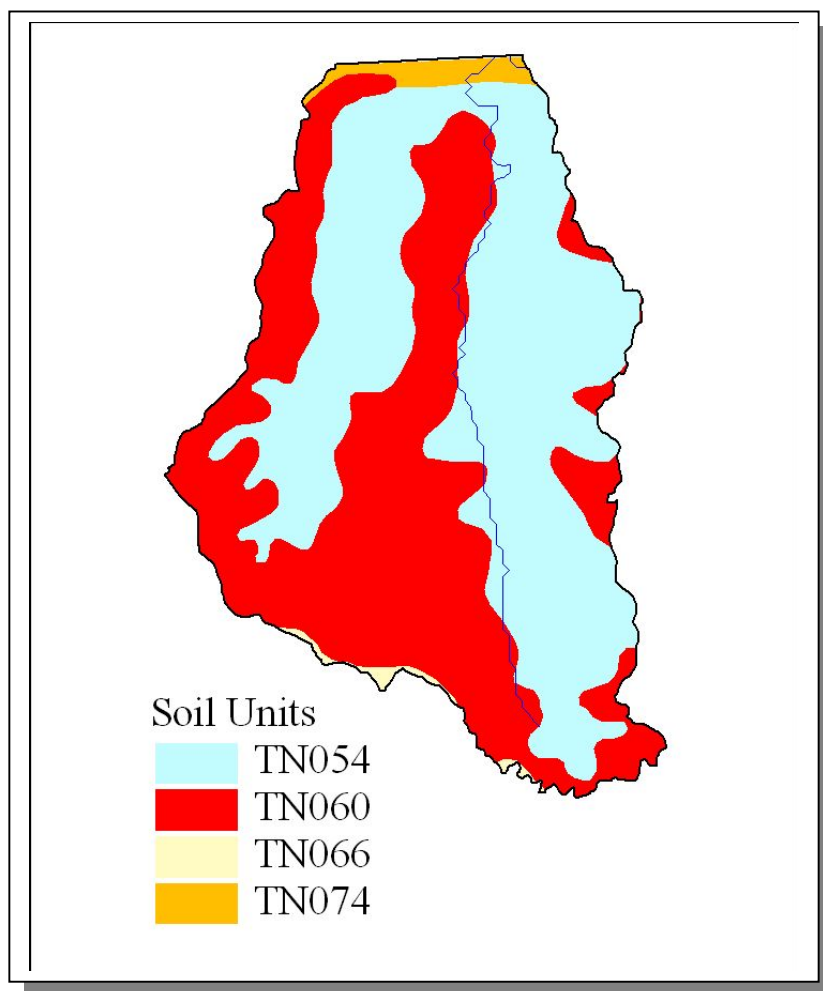


Figure 4-72. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020502.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN054	0.00	C	3.04	4.84	Loam	0.32
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN066	0.00	B	2.62	4.75	Loam	0.28
TN074	7.00	B	1.44	4.94	Loam	0.33

Table 4-59. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020502. The definition of "Hydrologic Group" is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Macon	15,906	17,854	20,386	19.02	3,025	3,396	3,877	28.2

Table 4-60. Population Estimates in Subwatershed 051100020502.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Lafayette	Macon	3,641	1,695	1,323	348	24

Table 4-61. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 051100020502.

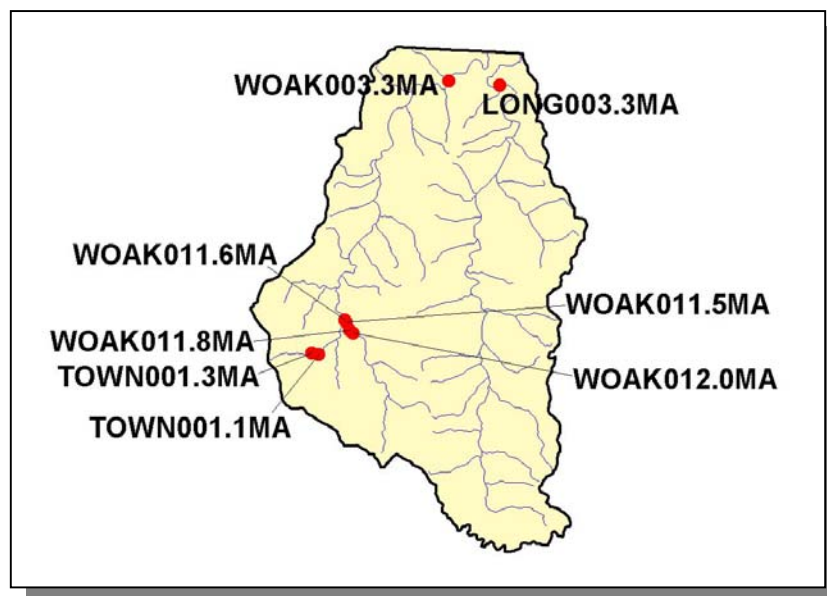


Figure 4-73. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 051100020502. More information, including site names and locations, and station numbers for sites located in the watershed outside of Tennessee, is provided in Appendix IV.

4.2.C.ii.a. Point Source Contributions.

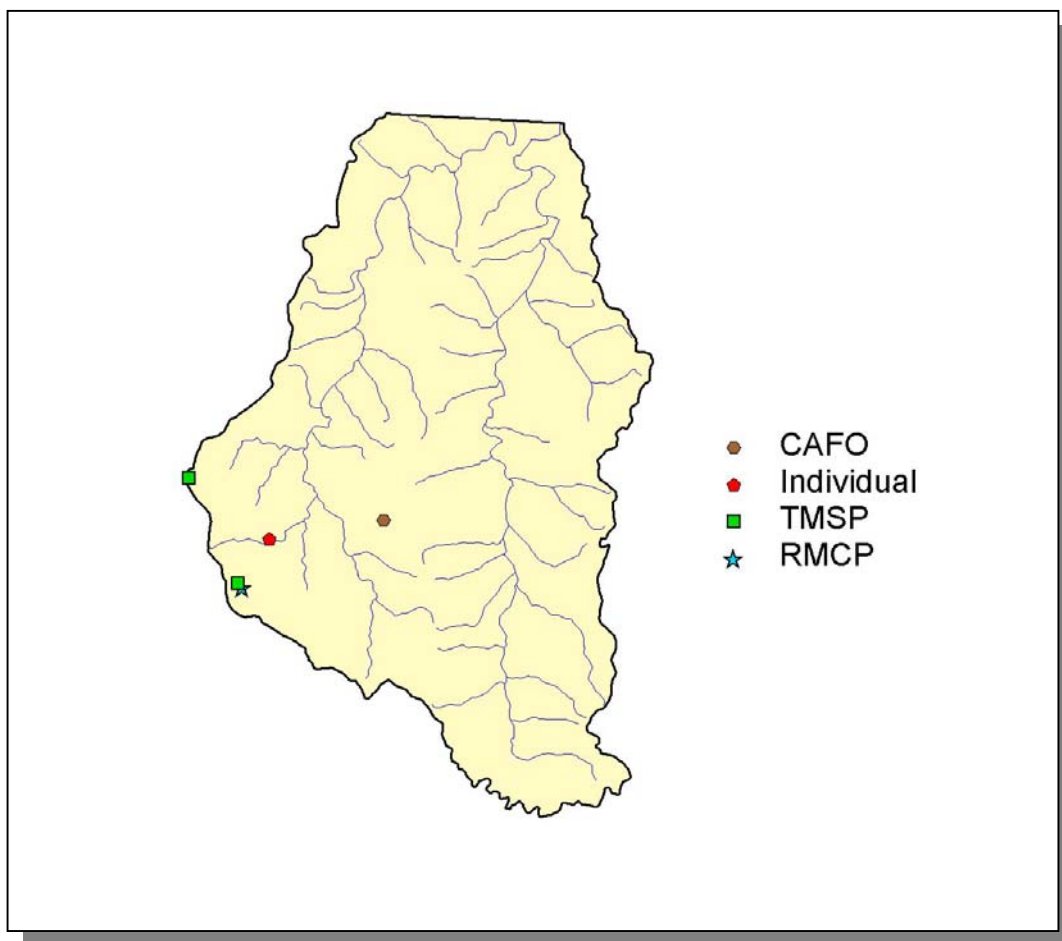


Figure 4-74. Location of Permits Issued in Subwatershed 051100020502. More information, including the names of facilities, is provided in Appendix IV.

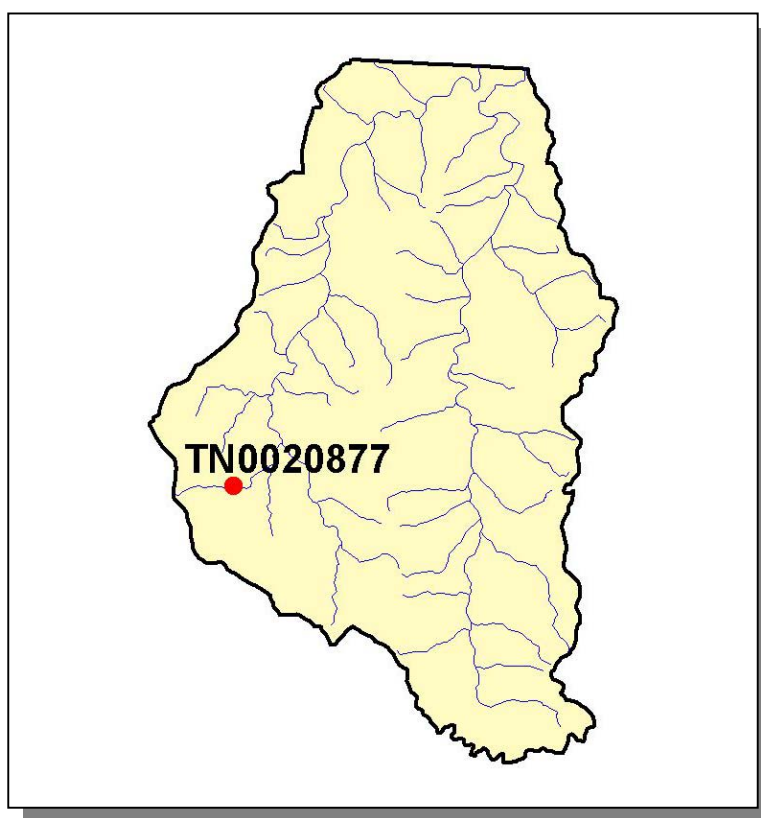


Figure 4-75. Location of Active NPDES Sites in Subwatershed 051100020502. More information, including the names of facilities, is provided in Appendix IV.

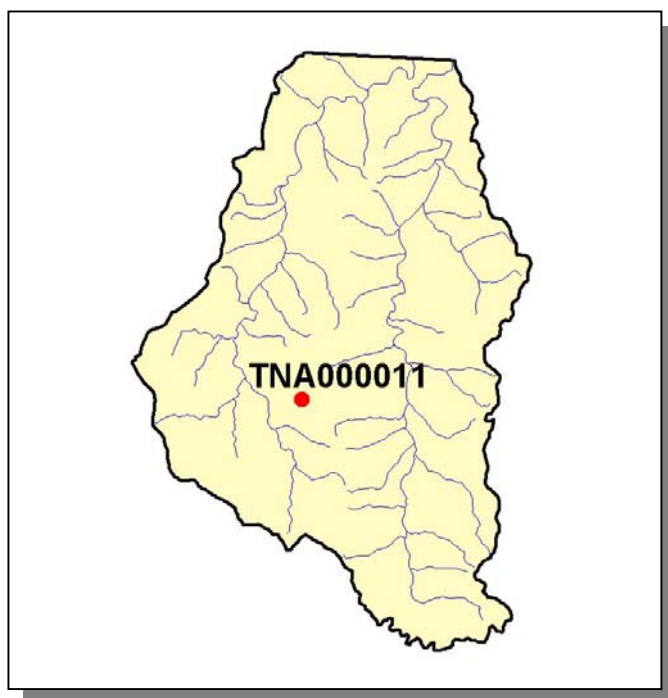


Figure 4-76. Location of Concentrated Animal Feeding Operations (CAFO) in Subwatershed 051100020502. More information, including the names of facilities, is provided in Appendix IV



Figure 4-77. Location of Ready Mix Concrete Plants (RMCP) in Subwatershed 051100020502. More information is provided in Appendix IV.

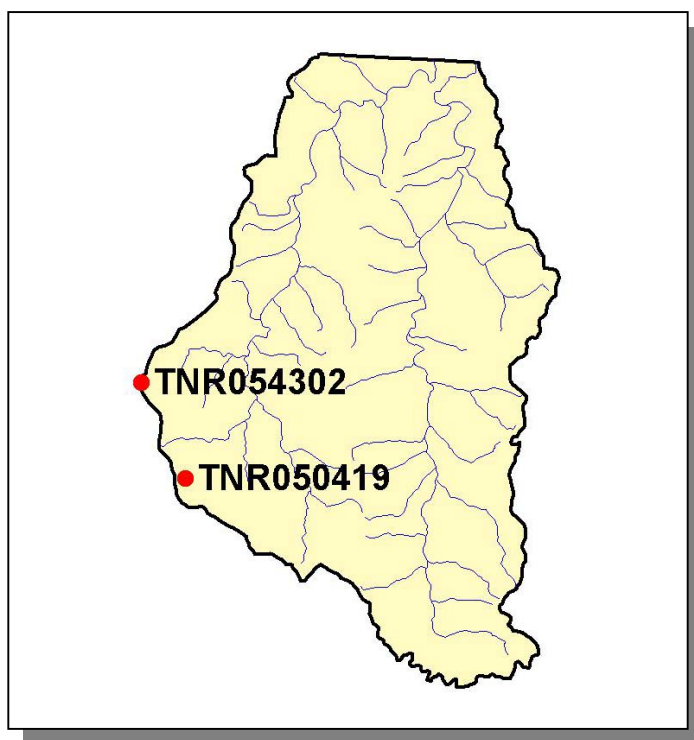


Figure 4-78. Location of TMSP Sites in Subwatershed 051100020502. More information, including the names of facilities, is provided in Appendix IV.

4.2.C.ii.a.i. Dischargers to Water Bodies Listed on the 2004 303(d) List

There is one NPDES facility discharging to water bodies listed on the 2004 303(d) list in Subwatershed 051100020502:

- TN0020877 (Lafayette STP) discharges to Town Creek @ RM 1.3

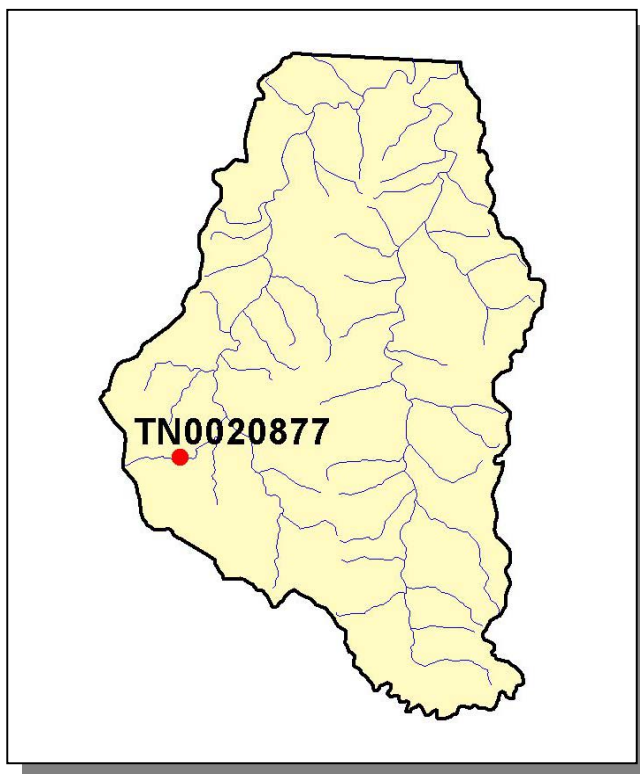


Figure 4-79. Location of NPDES Dischargers to Water Bodies Listed on the 2004 303(d) List in Subwatershed 051100020502. More information, including the names of facilities, is provided in Appendix IV.

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PERMIT #	1Q10	3Q10	7Q10	3Q20	QDESIGN
TN0020877			0.38		

Table 4-62. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 2004 303(d) List in Subwatershed 051100020502. Data are in million gallons per day (MGD). Data were obtained from the USGS publication Flow Duration and Low Flows of Tennessee Streams Through 1992 or from permit files.

PERMIT #	NH ₃	P	Zn	Cu	Pb	Ni	Cd	Hg	Mo	As	Se
TN0020877	X	X	X	X	X	X	X	X	X	X	X

Table 4-63. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 2004 303(d) List in Subwatershed 051100020502.

PERMIT #	CBOD ₅	E.coli	FECAL COLIFORM	NH ₃	TSS	SETTLEABLE SOLIDS	DO	pH
TN0020877	X	X	X	X	X	X	X	X

Table 4-64. Parameters Monitored for Daily Maximum Limits for NPDES Dischargers to Waterbodies Listed on the 2004 303(d) List in Subwatershed 051100020502. WET, Whole Effluent Toxicity; CBOD₅, Carbonaceous Biochemical Oxygen Demand (5-Day); TSS, Total Suspended Solids.

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4.2.C.ii.b. Nonpoint Source Contributions.

LIVESTOCK COUNTS					
Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
3,241	5,624	69	8	512	24

Table 4-65. Summary of Livestock Count Estimates in Subwatershed 051100020502. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Macon	15,039	26,098	318	675	2,377	111

Table 4-66. Summary of Livestock Count Estimates in Macon County. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Macon				

Table 4-67. Forest Acreage and Annual Removal Rates (1987-1994) in Macon County.

CROPS	TONS/ACRE/YEAR
Legumes (Pastureland)	0.07
Grass (Pastureland)	0.43
Grass (Hayland)	0.21
Legumes (Hayland)	0.13
Legumes, Grass (Hayland)	0.14
Grass, Forbs, Legumes (Mixed Pasture)	1.03
Corn (Row Crops)	3.99
Tobacco (Row Crops)	11.12
Wheat (Close-Grown Cropland)	3.43
Other Vegetable and Truck Crop	5.48
Conservation Reserve Program Lands	0.28
Farmsteads and Ranch Headquarters	0.16

Table 4-68. Annual Estimated Total Soil Loss in Subwatershed 051100020502.

4.2.D. 0511000208.

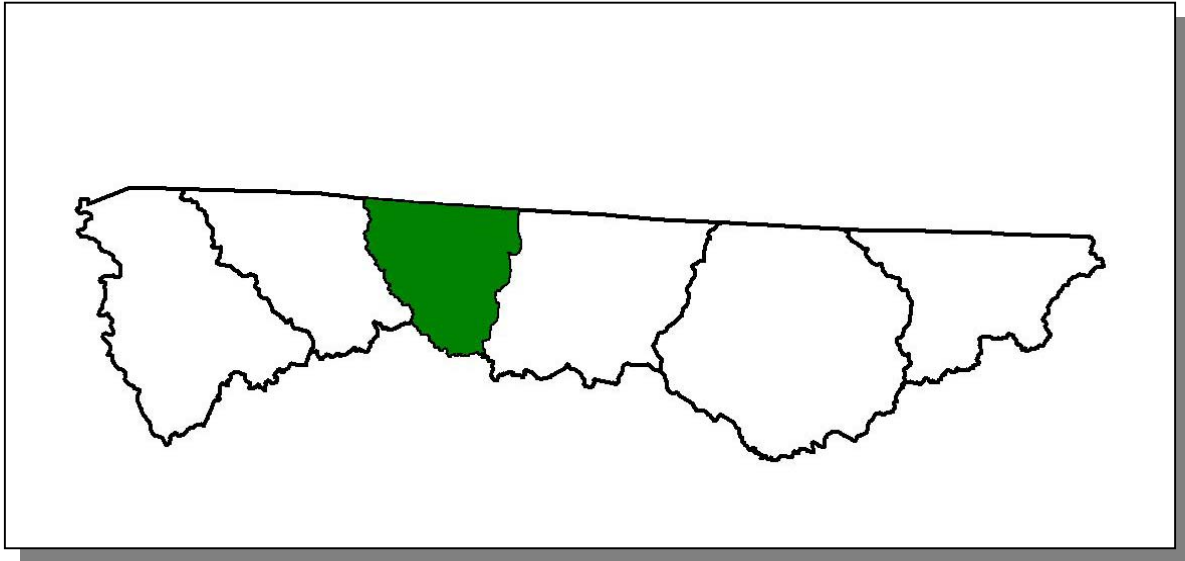


Figure 4-80. Location of Subwatershed 0511000208. All Barren River HUC-10 subwatershed boundaries are shown for reference.

4.2.D.i. 051100020801 Trammel Creek).

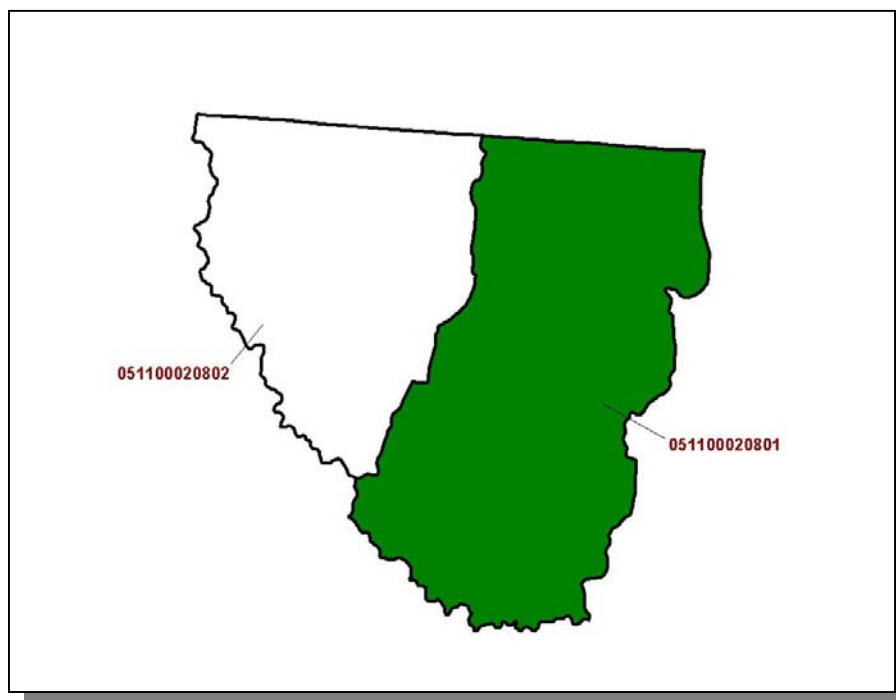


Figure 4-81. Location of Subwatershed 051100020801. All Barren River HUC-12 subwatershed boundaries are shown for reference.

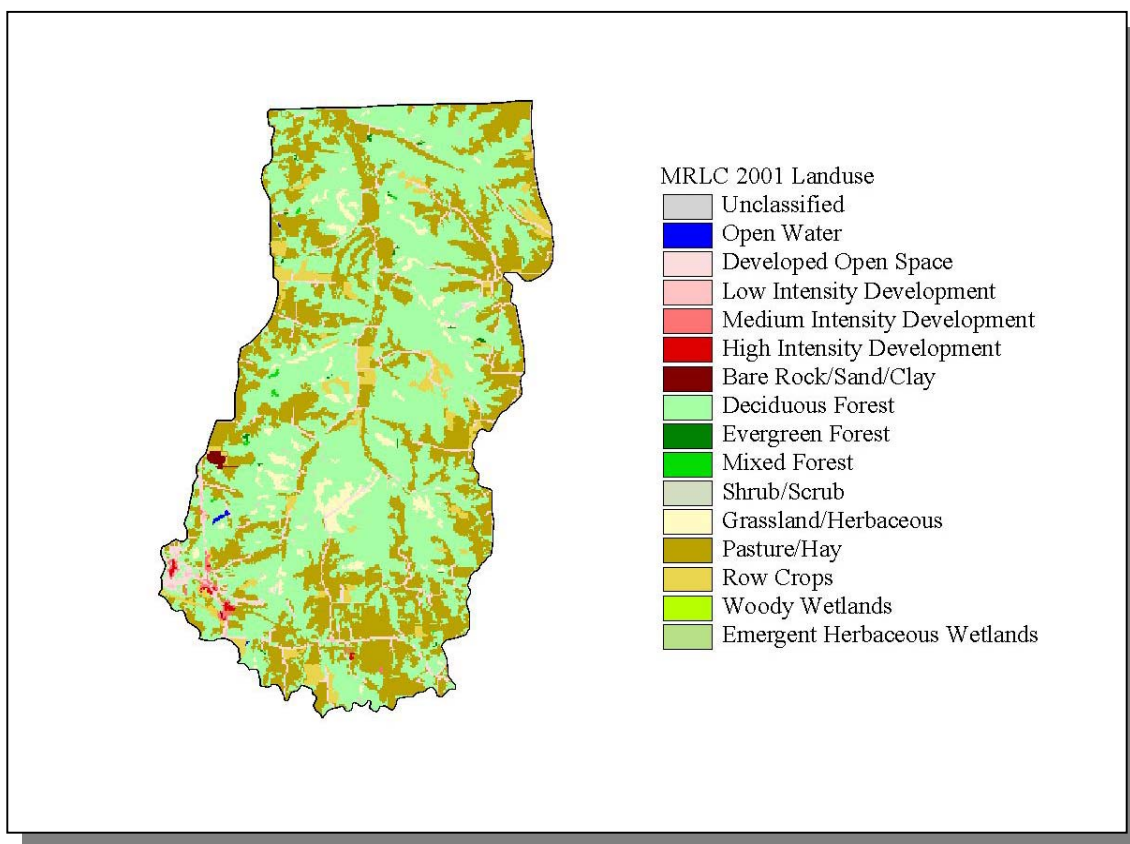


Figure 4-82. Illustration of Land Use Distribution in Subwatershed 051100020801.

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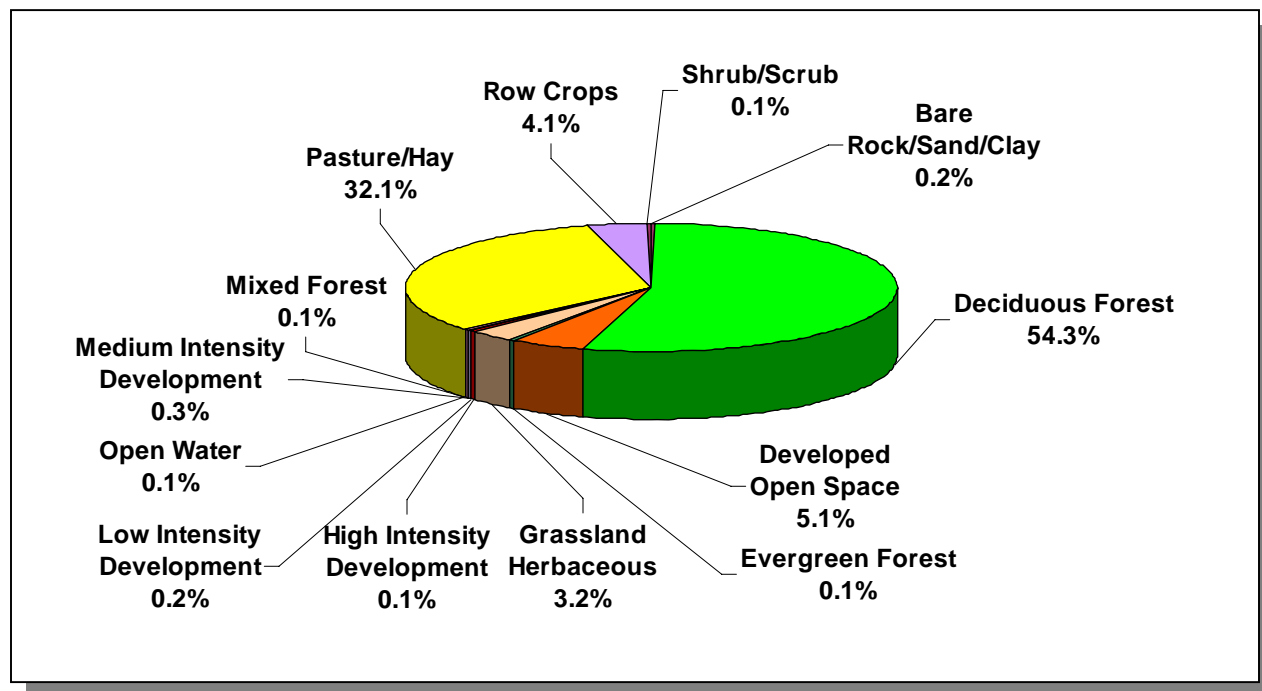


Figure 4-83. Land Use Distribution in Subwatershed 051100020801. More information is provided in Appendix IV.

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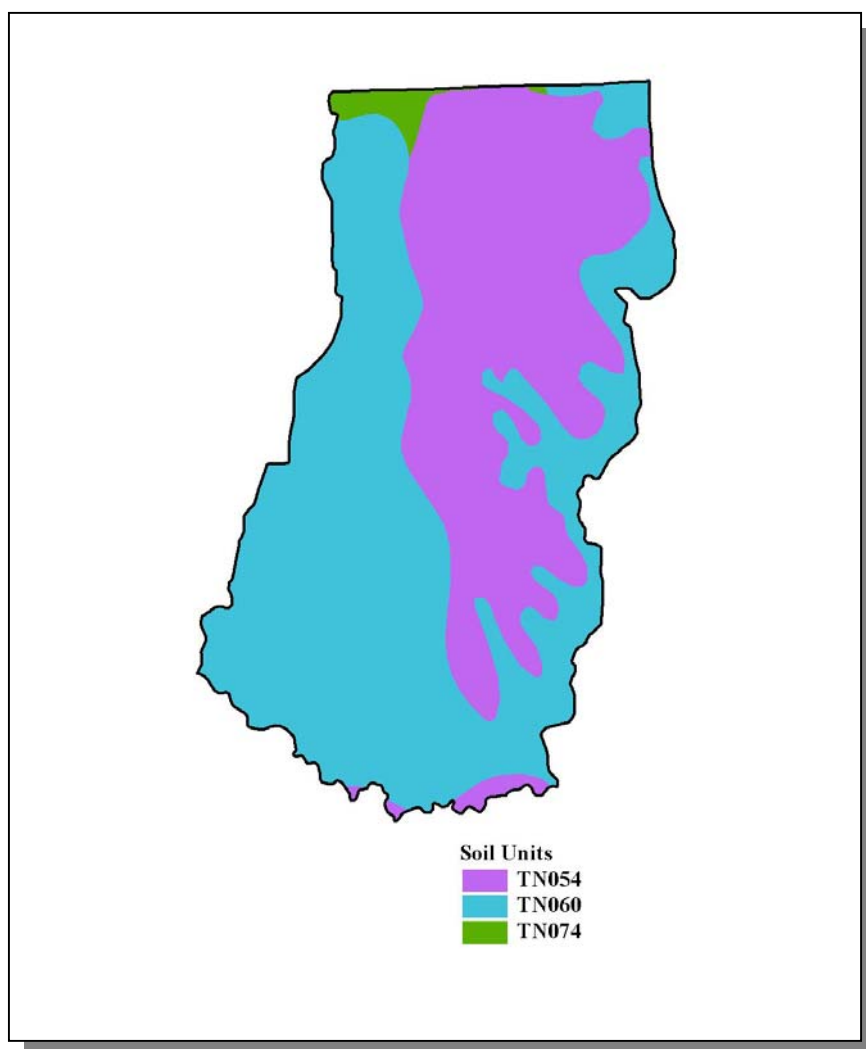


Figure 4-84. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020801.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN054	0.00	C	3.04	4.84	Loam	0.32
TN060	20.00	B	1.30	5.32	Silty Loam	0.39
TN074	14.00	B	1.44	4.94	Loam	0.33

Table 4-69. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020801. The definition of “Hydrologic Group” is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Macon	15,906	17,854	20,386	5.68	903	1,014	1,157	28.1
Sumner	103,281	121,936	130,449	1.54	1,586	1,872	2,003	26.3
Totals	119,187	139,790	150,835		2,489	2,886	3,160	27.0

Table 4-70. Population Estimates in Subwatershed 051100020801.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Westmoreland	Sumner	1,726	709	625	82	2

Table 4-71. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 051100020801.

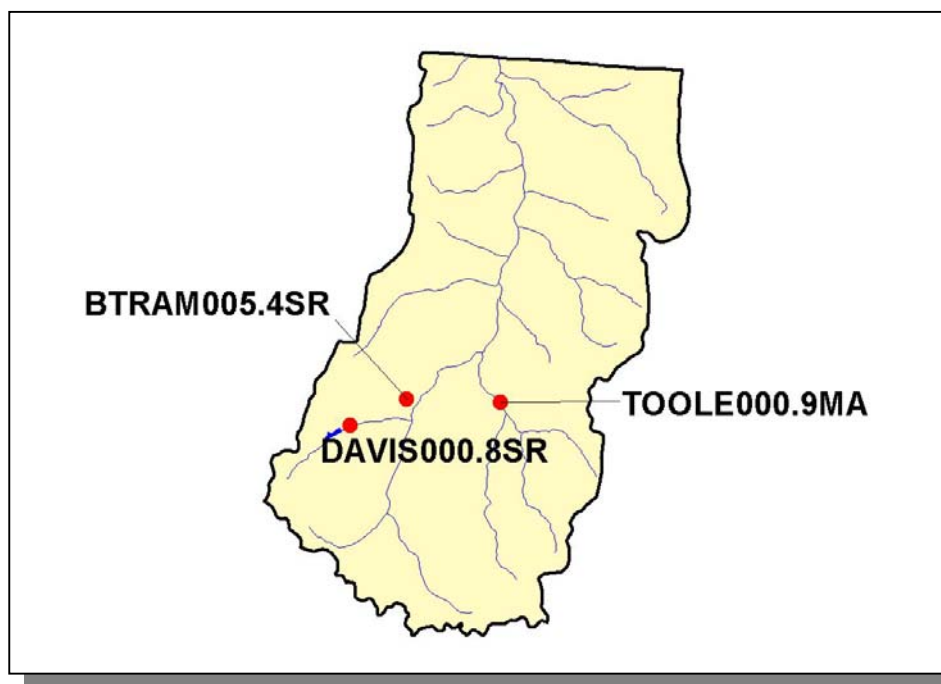


Figure 4-85. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 051100020801. More information, including site names and locations, and station numbers for sites located in the watershed outside of Tennessee, is provided in Appendix IV.

4.2.D.i.a. Point Source Contributions.

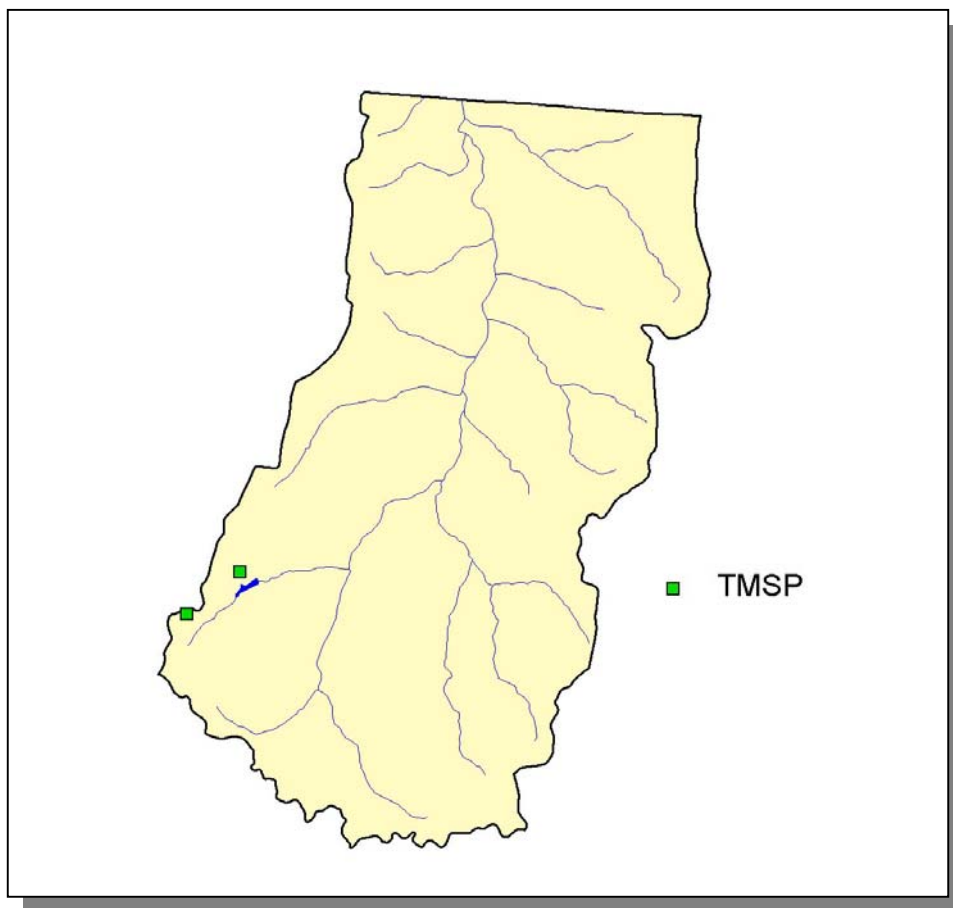


Figure 4-86. Location of Permits Issued in Subwatershed 051100020801. More information, including the names of facilities, is provided in Appendix IV.



Figure 4-87. Location of TMSP Sites in Subwatershed 051100020801. More information, including the names of facilities, is provided in Appendix IV.

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4.2.D.i.b. Nonpoint Source Contributions.

LIVESTOCK COUNTS					
Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
1,270	2,319	46	<5	182	10

Table 4-72. Summary of Livestock Count Estimates in Subwatershed 051100020801.
According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Macon	15,039	26,098	318	675	2,377	111
Sumner	22,296	45,116	1,515	50	2,500	189

Table 4-73. Summary of Livestock Count Estimates in Macon and Sumner Counties.
According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Sumner	88.2	88.2	2.0	6.3
Macon				

Table 4-74. Forest Acreage and Annual Removal Rates (1987-1994) in Sumner and Macon Counties.

CROPS	TONS/ACRE/YEAR
Legumes (Pastureland)	0.07
Grass (Pastureland)	0.44
Grass (Hayland)	0.24
Legumes (Hayland)	0.13
Legumes, Grass (Hayland)	0.17
Grass, Forbs, Legumes (Mixed Pasture)	0.87
Corn (Row Crops)	6.70
Soybeans (Row Crops)	11.27
Tobacco (Row Crops)	11.12
Wheat (Close-Grown Cropland)	3.43
Other Vegetable and Truck Crop	5.48
Other Cropland not Planted	19.23
Conservation Reserve Program Lands	0.27
Farmsteads and Ranch Headquarters	0.22

Table 4-75. Annual Estimated Total Soil Loss in Subwatershed 051100020801.

4.2.D.ii. 051100020802 (Little Trammel Creek).

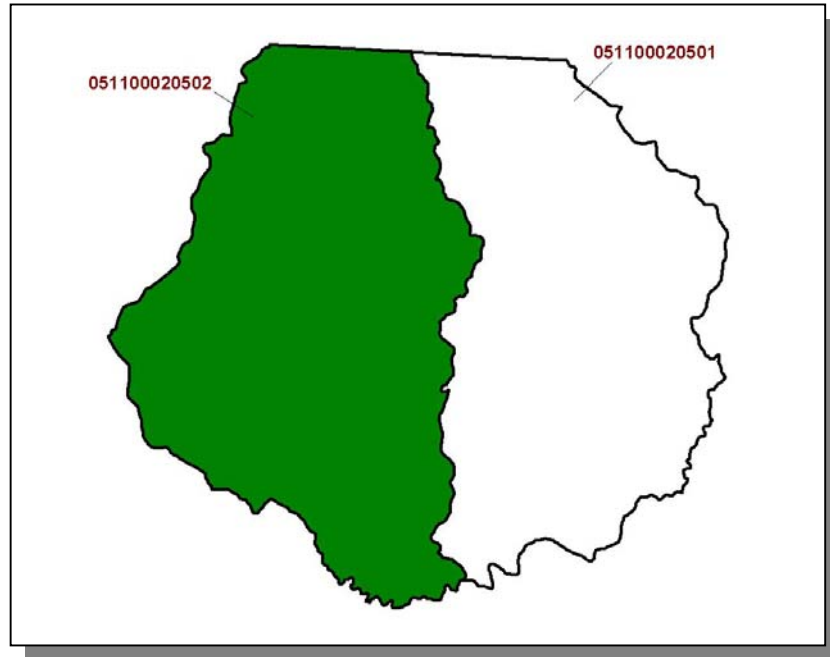


Figure 4-88. Location of Subwatershed 051100020802. All Barren River HUC-12 subwatershed boundaries are shown for reference.

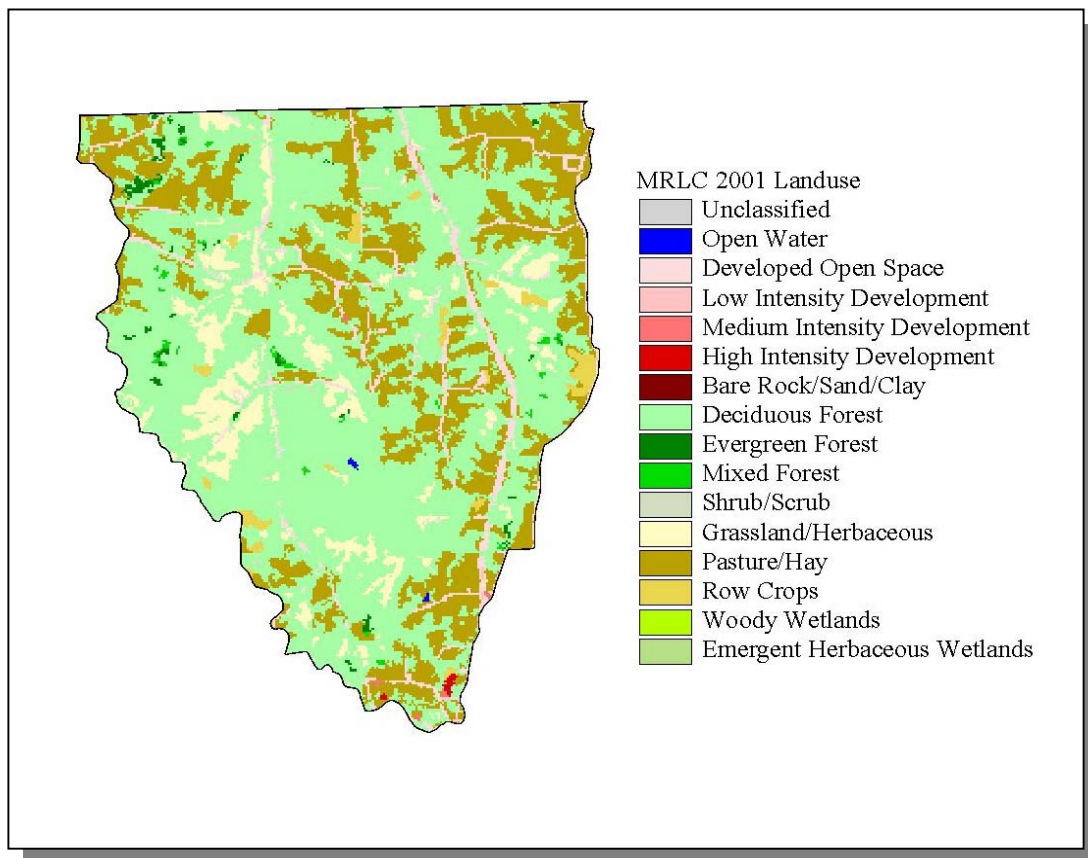


Figure 4-89. Illustration of Land Use Distribution in Subwatershed 051100020802.

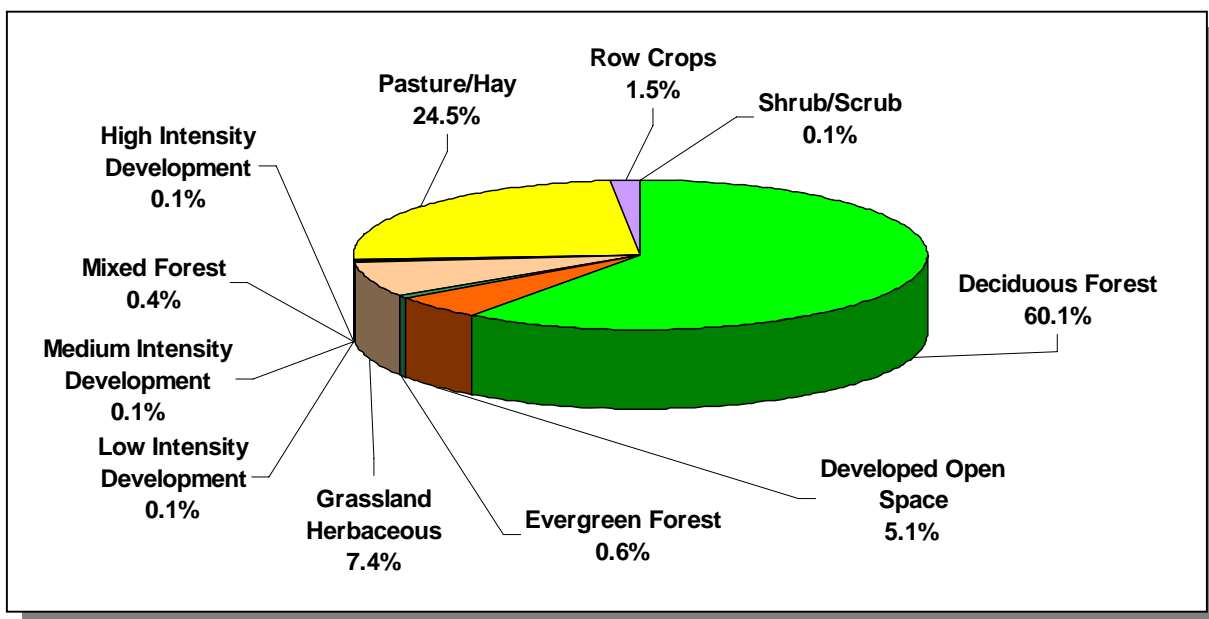


Figure 4-90. Land Use Distribution in Subwatershed 051100020802. More information is provided in Appendix IV.

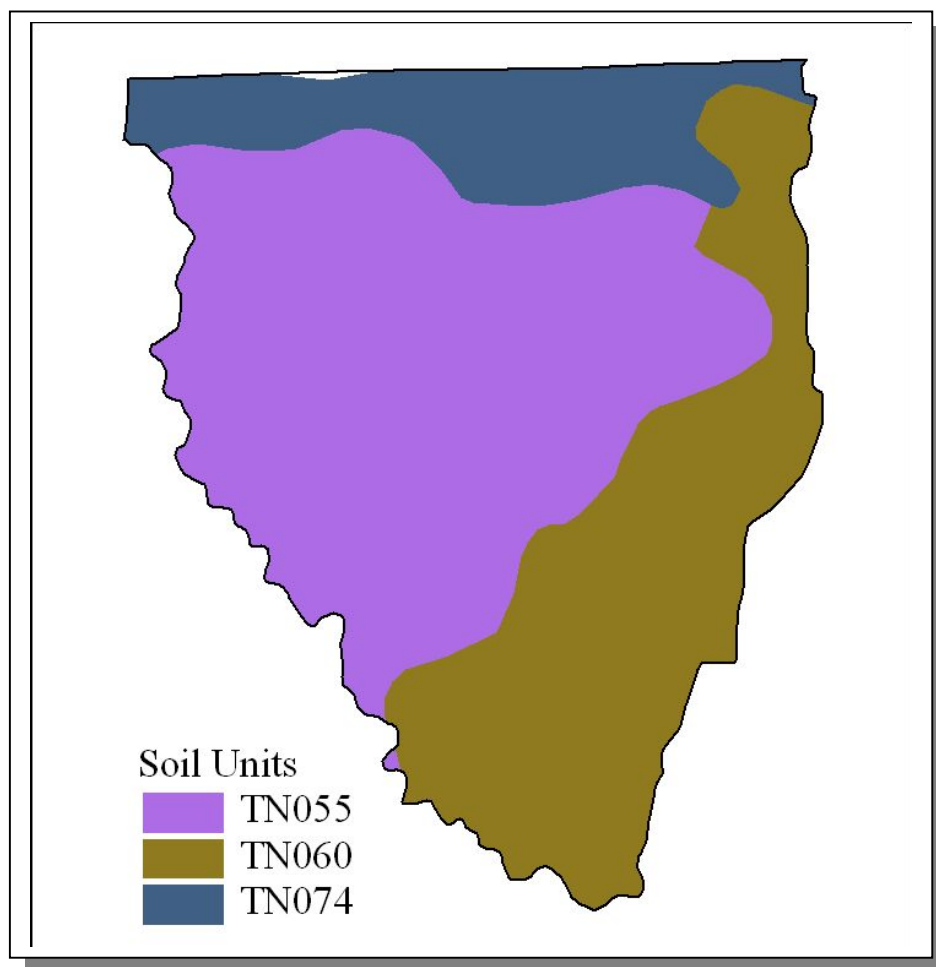


Figure 4-91. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020802.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN055	3.00	C	0.17	5.24	Loam	0.34
TN060	5.00	B	0.19	5.32	Silty Loam	0.39
TN074	7.00	B	0.17	4.94	Loam	0.33

Table 4-76. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020802. The definition of "Hydrologic Group" is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Sumner	103,281	121,936	130,449	3.21	3,316	3,915	4,188	26.3

Table 4-77. Population Estimates in Subwatershed 051100020802.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Westmoreland	Sumner	1,726	709	625	82	2

Table 4-78. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 051100020802.

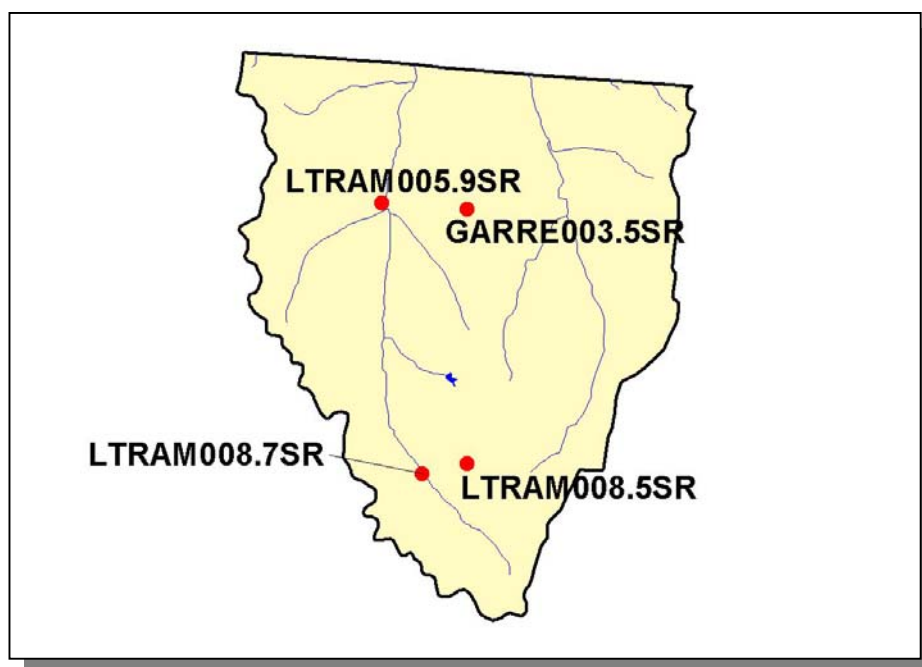


Figure 4-92. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 051100020802. More information, including site names and locations, and station numbers for sites located in the watershed outside of Tennessee, is provided in Appendix IV.

4.2.D.ii.a. Point Source Contributions.

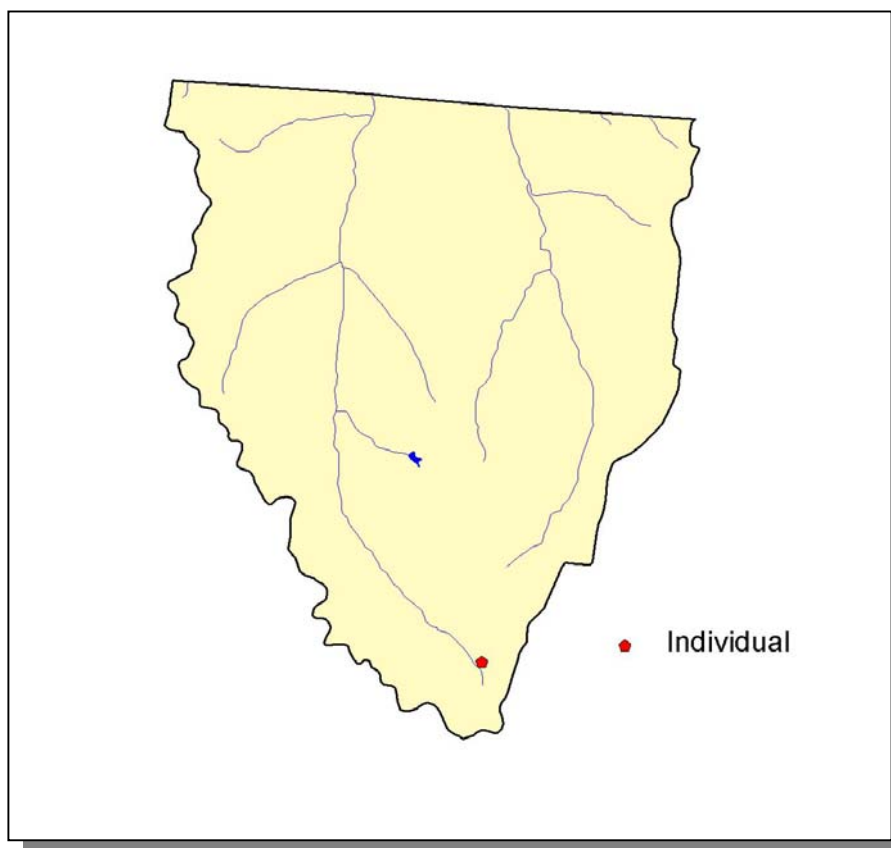


Figure 4-93. Location of Permits Issued in Subwatershed 051100020802. More information, including the names of facilities, is provided in Appendix IV.

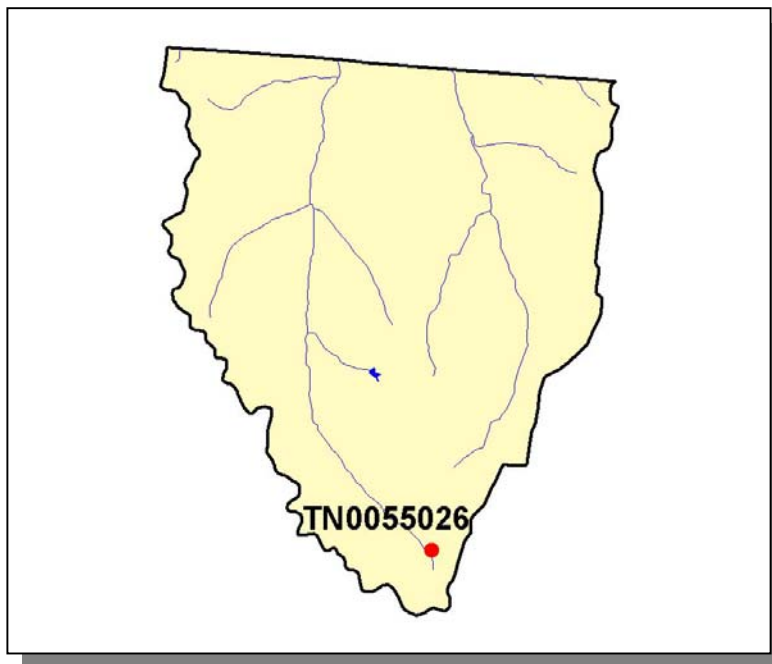


Figure 4-94. Location of Active NPDES Sites in Subwatershed 051100020802. More information, including the names of facilities, is provided in Appendix IV.

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4.2.D.ii.b. Nonpoint Source Contributions.

LIVESTOCK COUNTS					
Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
823	1,664	56	<5	92	7

Table 4-79. Summary of Livestock Count Estimates in Subwatershed 051100020802. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Sumner	22,296	45,116	1,515	50	2,500	189

Table 4-80. Summary of Livestock Count Estimates in Sumner County. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Sumner	88.2	88.2	2	6.3

Table 4-81. Forest Acreage and Annual Removal Rates (1987-1994) in Sumner County.

CROPS	TONS/ACRE/YEAR
Grass (Pastureland)	0.46
Grass (Hayland)	0.31
Legumes (Hayland)	0.12
Legumes, Grass (Hayland)	0.23
Grass, Forbs, Legumes (Mixed Pasture)	0.54
Corn (Row Crops)	12.32
Soybeans (Row Crops)	11.27
Other Cropland not Planted	19.23
Conservation Reserve Program Lands	0.26
Farmsteads and Ranch Headquarters	0.34

Table 4-82. Annual Estimated Total Soil Loss in Subwatershed 051100020802.

4.2.D.ii.a.i. Dischargers to Water Bodies Listed on the 2004 303(d) List

There is one NPDES facility discharging to water bodies listed on the 2004 303(d) list in Subwatershed 051100020802:

- TN0055026 (Westmoreland STP) discharges to Little Trammel Creek @ RM 9.9

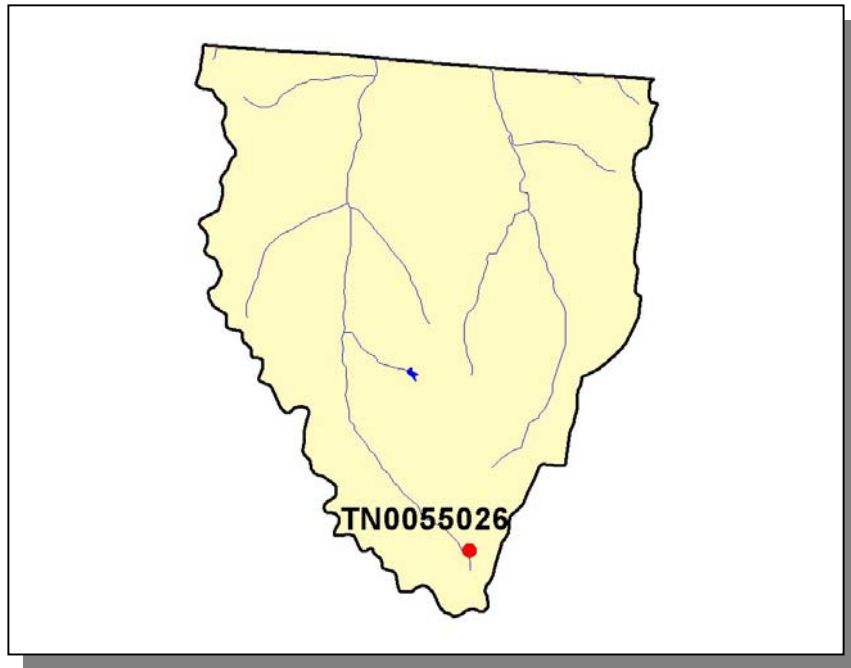


Figure 4-95. Location of NPDES Dischargers to Water Bodies Listed on the 2004 303(d) List in Subwatershed 051100020802. More information, including the names of facilities, is provided in Appendix IV.

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PERMIT #	1Q10	3Q10	7Q10	3Q20	QDESIGN
TN0055026				0	

Table 4-83. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 2004 303(d) List in Subwatershed 051100020802. Data are in million gallons per day (MGD). Data were obtained from the USGS publication Flow Duration and Low Flows of Tennessee Streams Through 1992 or from permit files.

PERMIT #	P	N	Cu	Pb	Ni	As	Cd	Se	Hg	Mo
TN0055026	X	X	X	X	X	X	X	X	X	X

Table 4-84. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 2004 303(d) List in Subwatershed 051100020802.

PERMIT #	WET	CBOD ₅	FECAL COLIFORM	NH ₃	TRC	TSS	SETTLEABLE SOLIDS	DO	pH
TN0055026	X	X	X	X	X	X	X	X	X

Table 4-85. Parameters Monitored for Daily Maximum Limits for NPDES Dischargers to Waterbodies Listed on the 2004 303(d) List in Subwatershed 051100020802. WET, Whole Effluent Toxicity; CBOD₅, Carbonaceous Biochemical Oxygen Demand (5-Day); TRC, Total Residual Chlorine; TSS, Total Suspended Solids.

4.2.E. 0511000209.

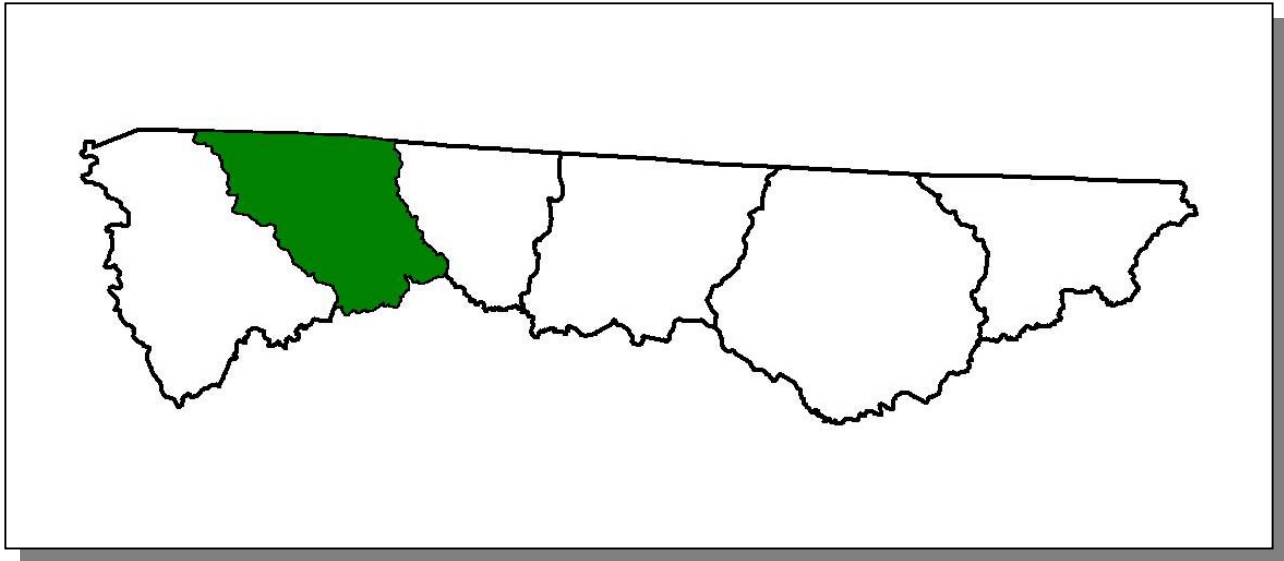


Figure 4-96. Location of Subwatershed 0511000209. All Tennessee Western Valley (Beech River) HUC-10 subwatershed boundaries are shown for reference.

4.2.E.i. 051100020901 (Middle Fork).

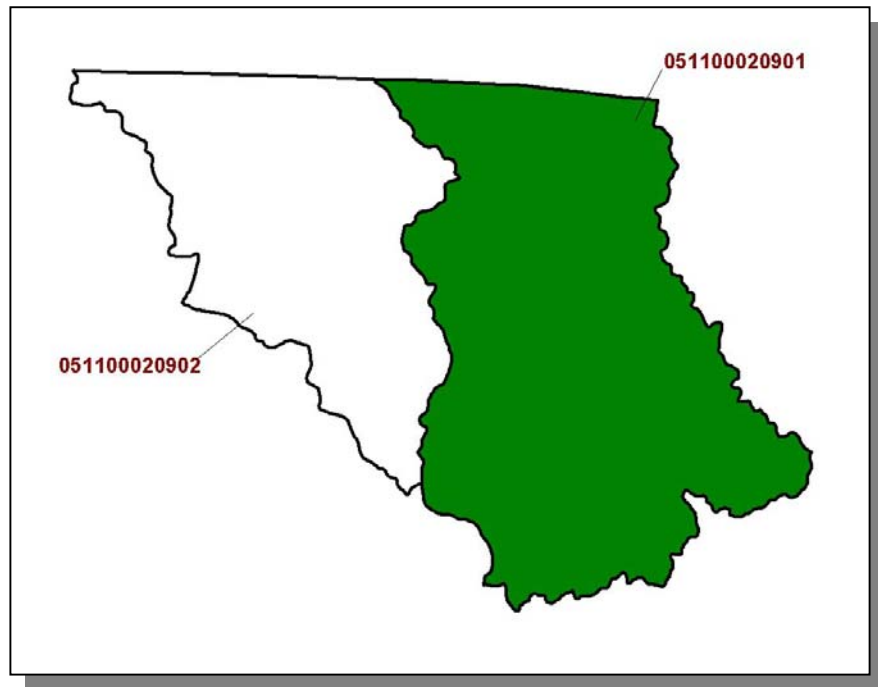


Figure 4-97. Location of Subwatershed 051100020901. All Barren River HUC-12 subwatershed boundaries are shown for reference.

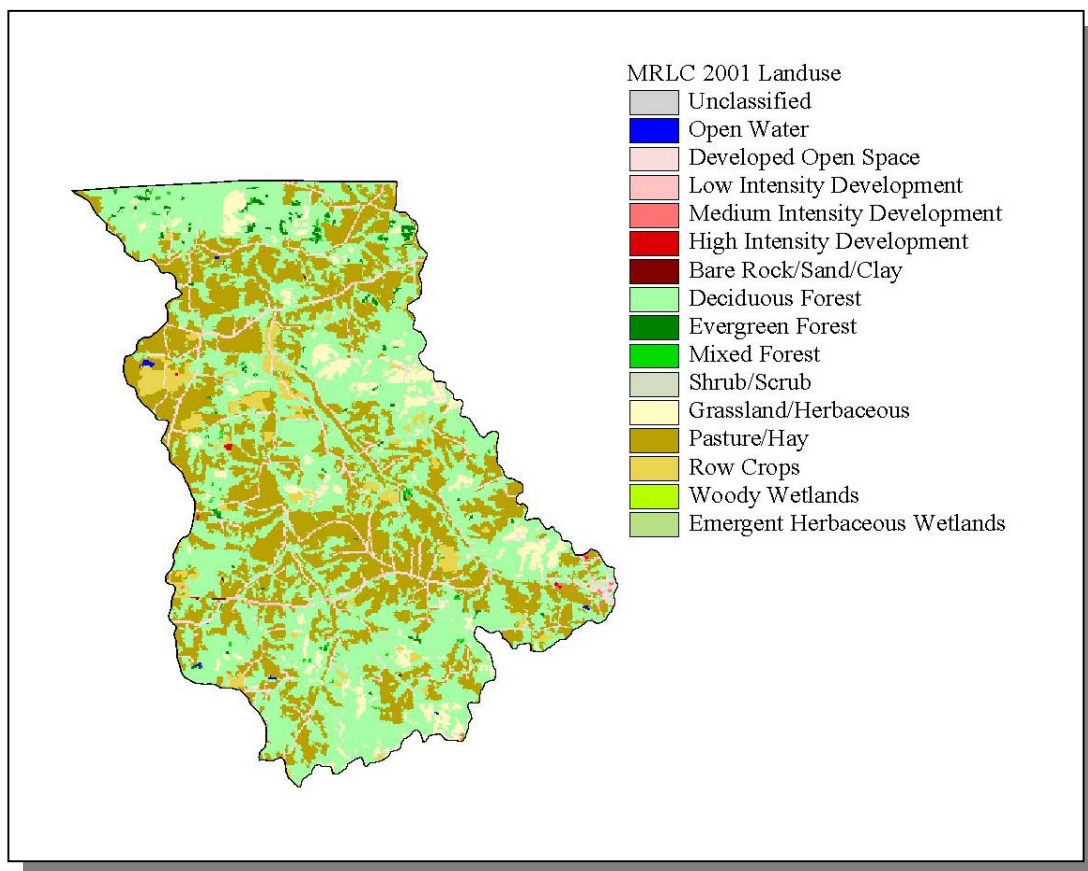


Figure 4-98. Illustration of Land Use Distribution in Subwatershed 051100020901.

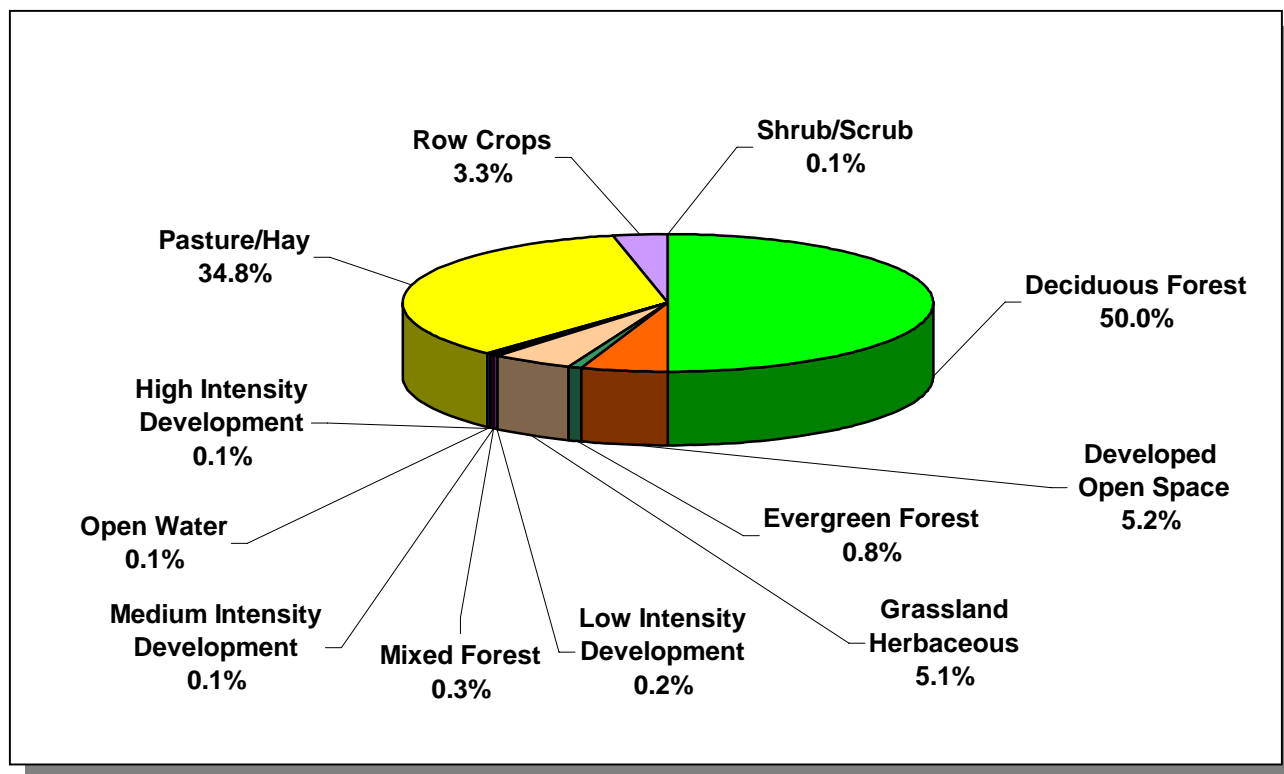


Figure 4-99. Land Use Distribution in Subwatershed 051100020901.

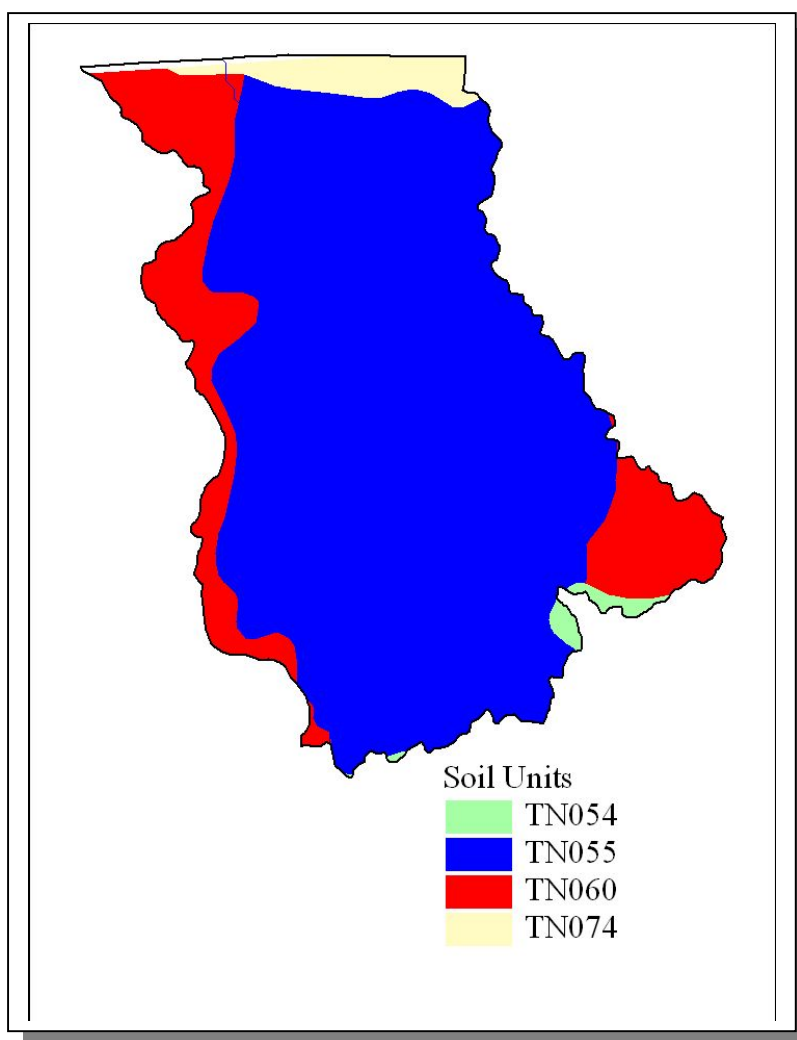


Figure 4-100. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020901.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN054	0.00	C	3.04	4.84	Loam	0.32
TN055	3.00	C	2.45	5.24	Loam	0.34
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN074	7.00	B	1.44	4.94	Loam	0.33

Table 4-86. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020901. The definition of “Hydrologic Group” is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Sumner	103,281	121,936	130,449	6.19	6,392	7,546	8,073	26.3

Table 4-87. Population Estimates in Subwatershed 051100020901.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Westmoreland	Sumner	1,726	709	625	82	2

Table 4-88. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 051100020901.

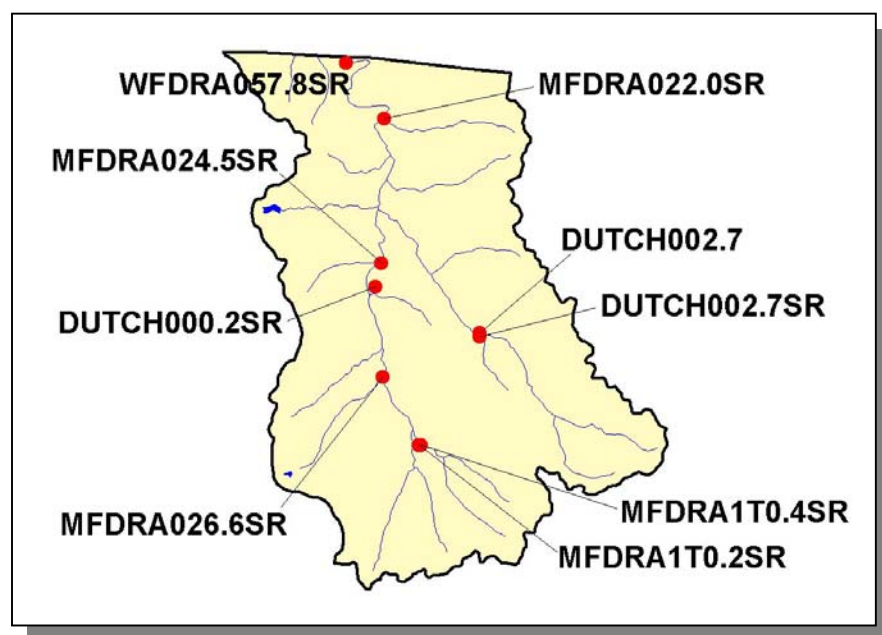


Figure 4-101. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 051100020901. More information, including site names and locations, and station numbers for sites located in the watershed outside of Tennessee, is provided in Appendix IV.

4.2.E.i.a. Point Source Contributions.

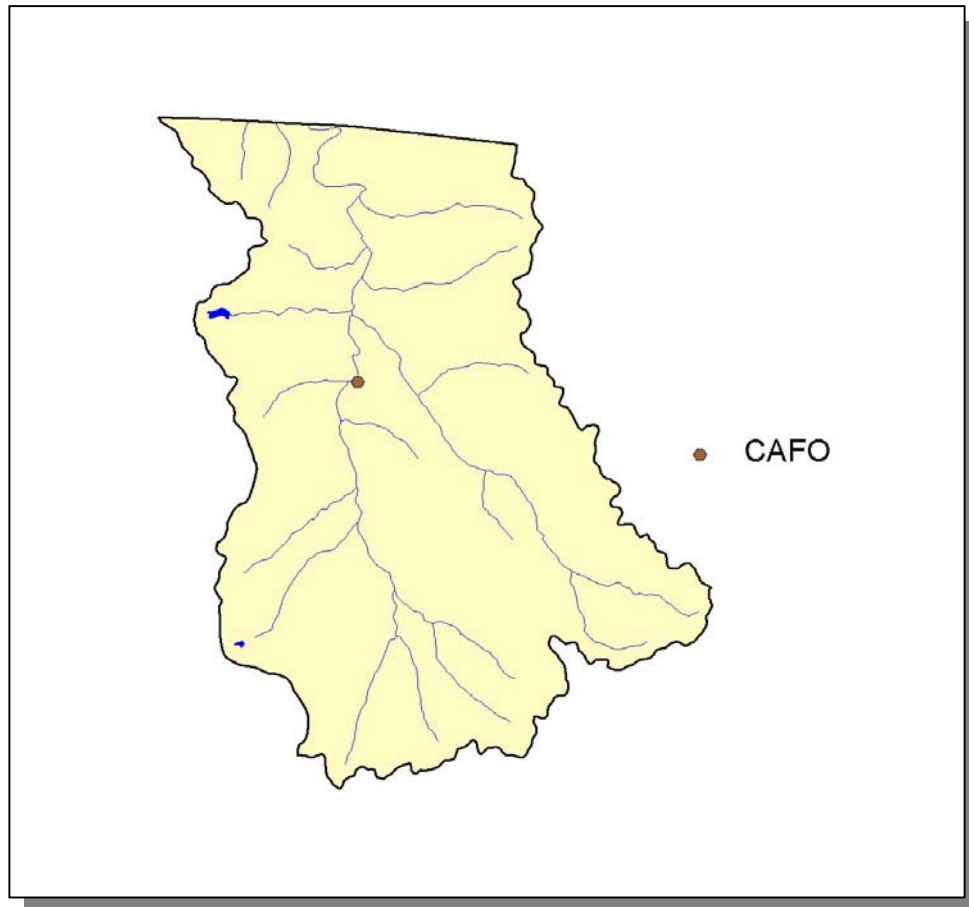


Figure 4-102. Location of Permits Issued in Subwatershed 051100020901. More information, including the names of facilities, is provided in Appendix IV.

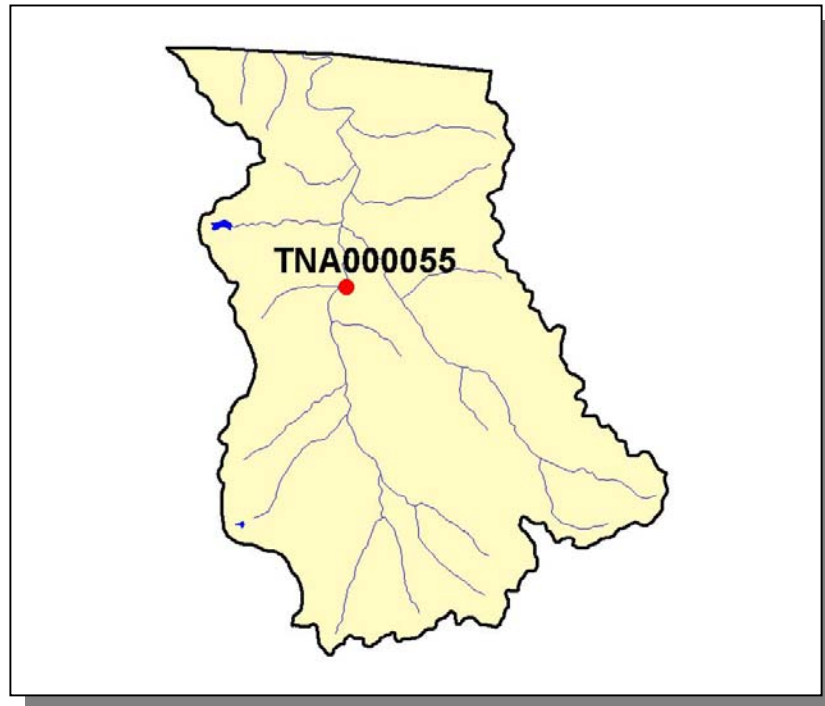


Figure 4-103. Location of Concentrated Animal Feeding Operations (CAFO) in Subwatershed 051100020901. More information, including the names of facilities, is provided in Appendix IV.

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4.2.E.i.b. Nonpoint Source Contributions.

LIVESTOCK COUNTS					
Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
22,296	45,116	1,515	50	2,500	189

Table 4-89. Summary of Livestock Count Estimates in Subwatershed 051100020901. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Sumner	22,296	45,116	1,515	50	2,500	189

Table 4-90. Summary of Livestock Count Estimates in Sumner County. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Sumner	88.2	88.2	2.0	6.3

Table 4-91. Forest Acreage and Annual Removal Rates (1987-1994) in Sumner County.

CROPS	TONS/ACRE/YEAR
Grass (Pastureland)	0.46
Grass (Hayland)	0.31
Legumes (Hayland)	0.12
Legumes, Grass (Hayland)	0.23
Grass, Forbs, Legumes (Mixed Pasture)	0.54
Corn (Row Crops)	12.32
Soybeans (Row Crops)	11.27
Other Cropland not Planted	19.23
Conservation Reserve Program Lands	0.26
Farmsteads and Ranch Headquarters	0.34

Table 4-92. Annual Estimated Total Soil Loss in Subwatershed 051100020901.

4.2.E.ii. 051100020902 (Sulfur Fork).

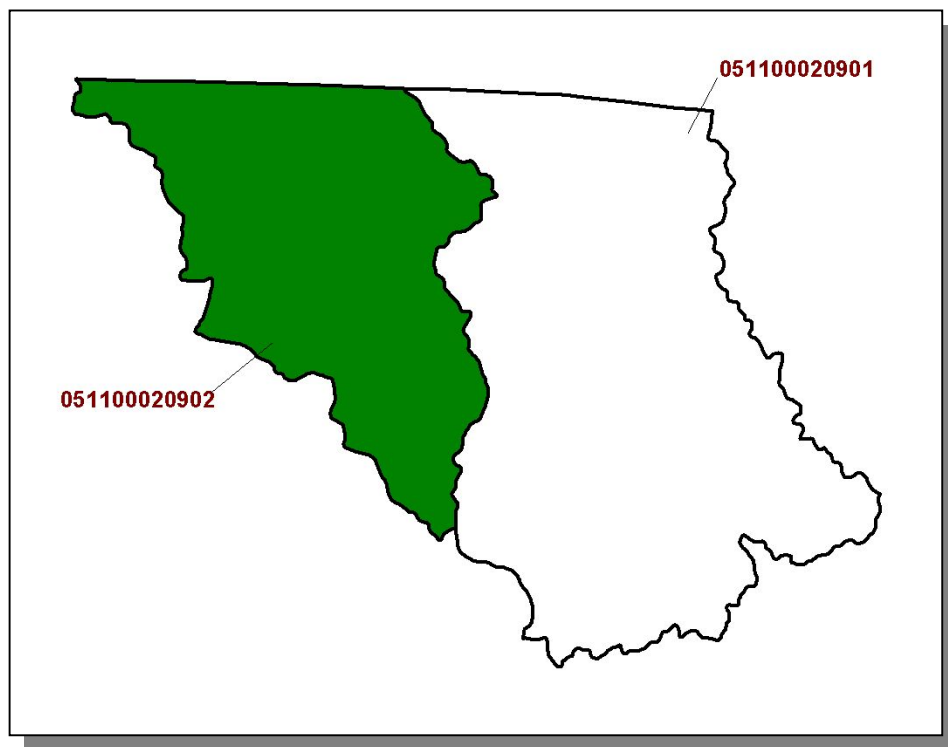


Figure 4-104. Location of Subwatershed 051100020902. All Barren River HUC-12 subwatershed boundaries are shown for reference.

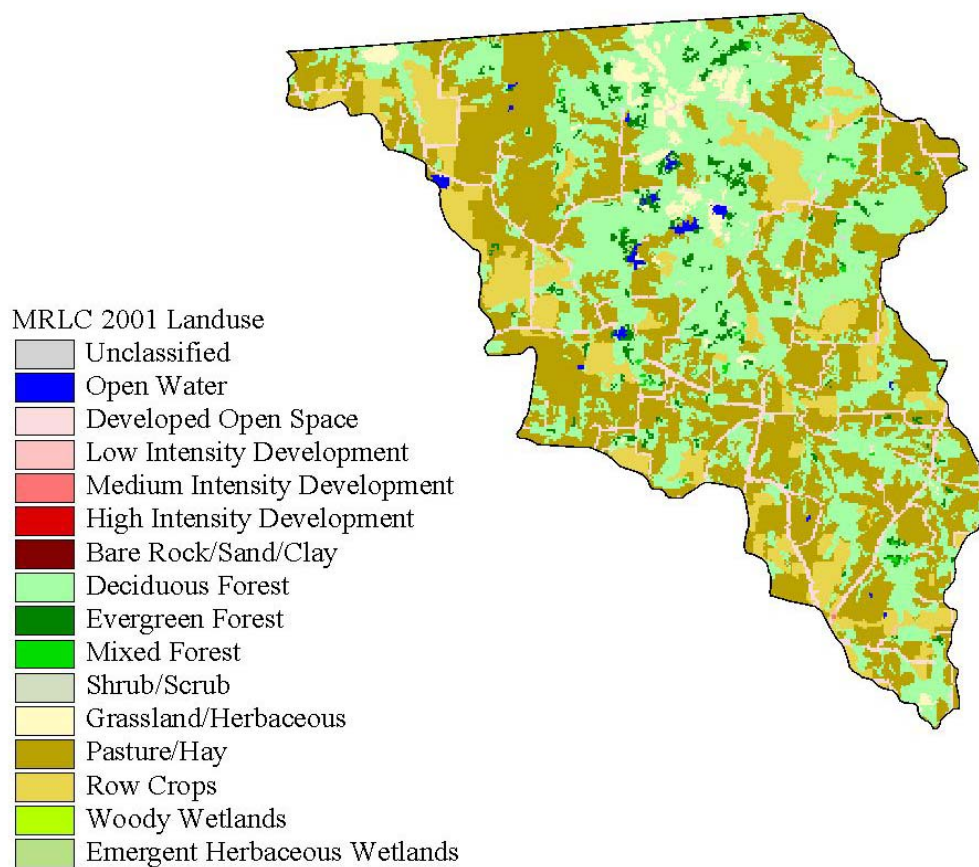


Figure 4-105. Illustration of Land Use Distribution in Subwatershed 051100020902.

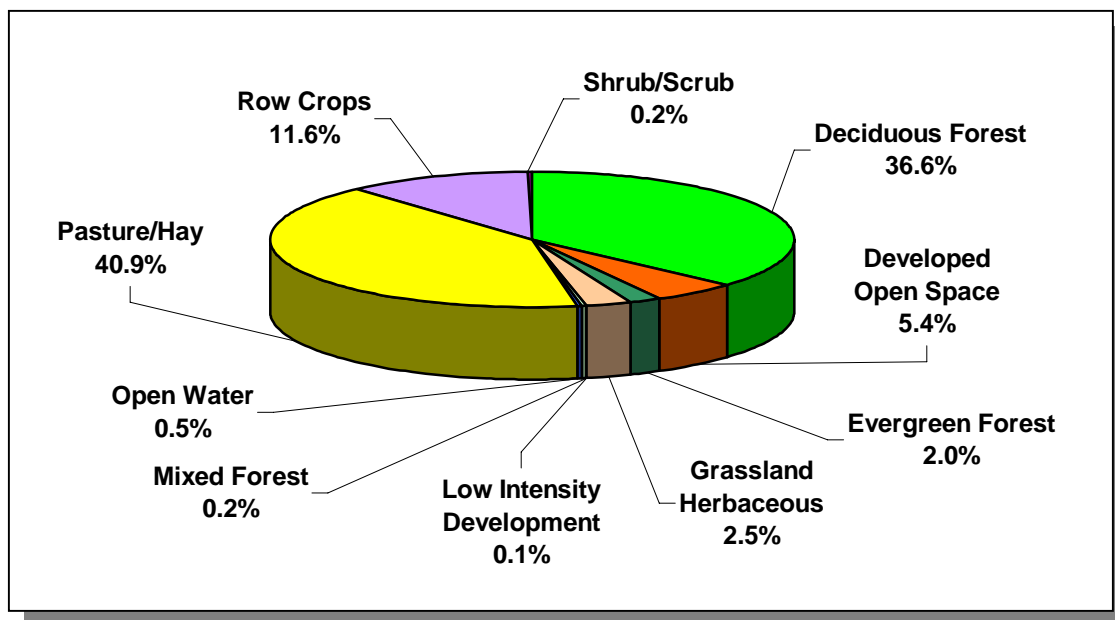


Figure 4-106. Land Use Distribution in Subwatershed 051100020902. More information is provided in Appendix IV.

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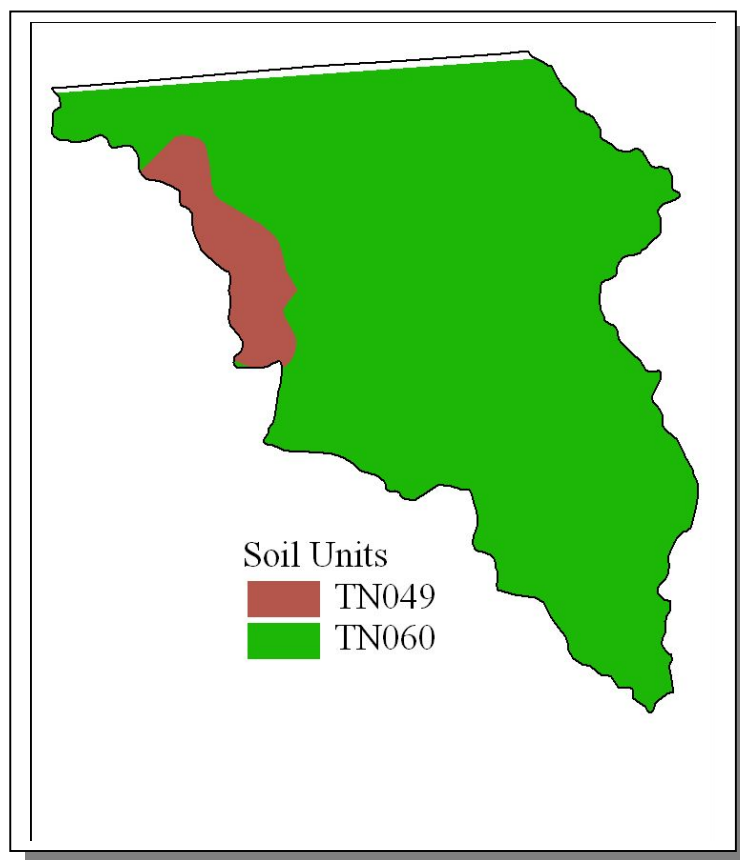


Figure 4-107. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020902.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN049	0.00	B	1.30	5.94	Silty Loam	0.34
TN060	5.00	B	1.30	5.32	Silty Loam	0.39

Table 4-93. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 051100020902. The definition of "Hydrologic Group" is provided in Appendix IV.

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County	COUNTY POPULATION			Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED			% Change (1990-2000)
	1990	1997	2000		1990	1997	2000	
Sumner	103,281	121,936	130,449	3.90	4,030	4,758	5,090	26.3

Table 4-94. Population Estimates in Subwatershed 051100020902.

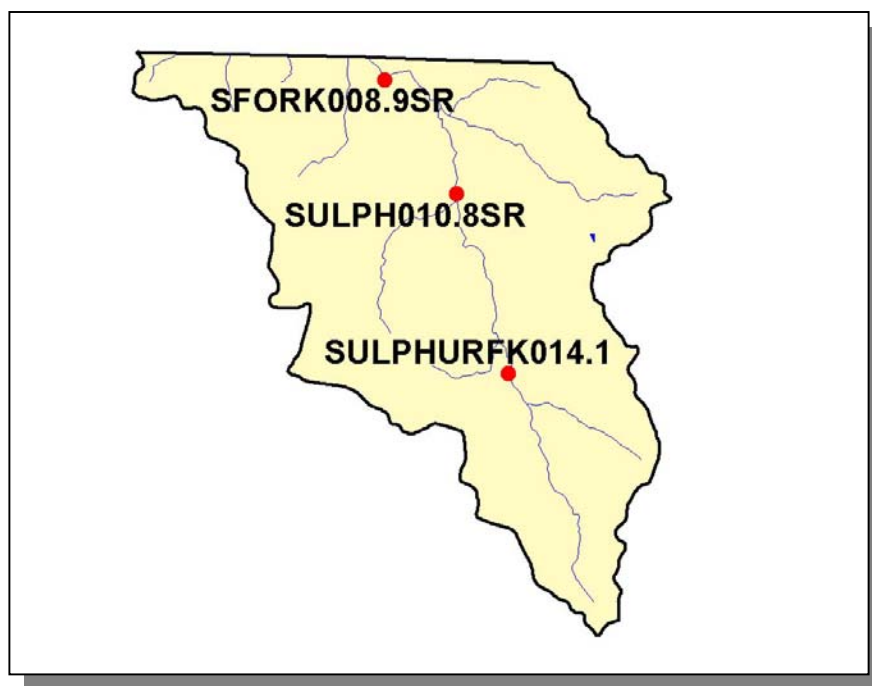


Figure 4-108. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 051100020902. More information, including site names and locations, and station numbers for sites located in the watershed outside of Tennessee, is provided in Appendix IV.

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4.2.E.ii.a. Point Source Contributions.

There are no point source contributions in this subwatershed.

4.2.E.ii.b. Nonpoint Source Contributions.

LIVESTOCK COUNTS					
Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
1,321	2,674	90	<5	148	11

Table 4-95. Summary of Livestock Count Estimates in Subwatershed 051100020902. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Sumner	22,296	45,116	1,515	50	2,500	189

Table 4-96. Summary of Livestock Count Estimates in Sumner County. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

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CROPS	TONS/ACRE/YEAR
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Grass (Hayland)	0.31
Legumes, Grass (Hayland)	0.23
Grass, Forbs, Legumes (Mixed Pasture)	0.54
Corn (Row Crops)	12.32
Soybeans (Row Crops)	11.27
Other Cropland not Planted	19.23
Conservation Reserve Program Lands	0.26
Non-Agricultural Land Use	0.00
Farmsteads and Ranch Headquarters	0.34

Table 4-98. Annual Estimated Total Soil Loss in Subwatershed 051100020902.